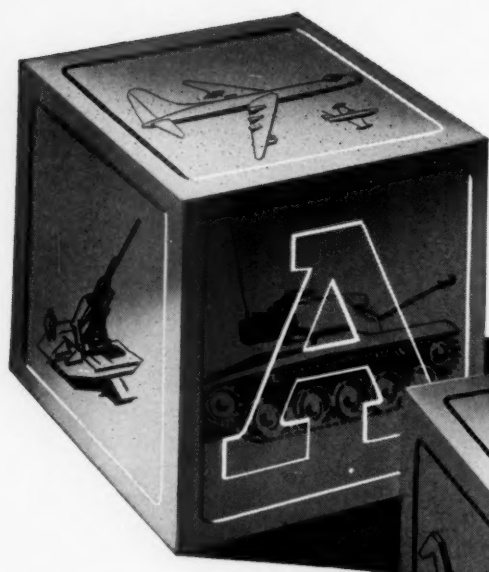


AMERICAN GAS ASSOCIATION

Monthly

OCTOBER
1951





in **A**rmaments



and **A**griculture ...

GAS plays its vital role

The essential tasks performed by Gas in both agricultural implement and armament manufacturing, are the basic heat processing applications in metals, chemicals, and ceramics where this versatile fuel has become an indispensable tool in the production line.

The simplicity and the flexibility of Gas Equipment which make it so readily adaptable to the most complex or the simplest heat treating requirements, are also reflected in the cost of fuel and equipment.

Whether you're manufacturing implements for agriculture or material for the armed services you'll find the productive flames of Gas can be applied at the heat processing stages in every production line—just as Gas is being used thruout industry for—

- Powder Metal Sintering
- Billet Heating
- Brazing
- Carburizing
- Normalizing
- Case Hardening
- Fusing
- Bright Annealing
- Core Baking
- Polymerizing
- Batch Melting
- Finishing

By every standard of comparison Gas is the ideal fuel for industrial process applications. The automatic controllability of Gas at any temperature, is just one of the features worth investigation. Be sure to ask your Gas Company Representative for information about applying Gas and Modern Gas Equipment.

MORE AND MORE...

THE TREND IS TO GAS

FOR INDUSTRIAL PROCESS

AMERICAN GAS ASSOCIATION • 420 LEXINGTON AVE., NEW YORK 17, N. Y.



THIS MONTH'S COVER: A Tennessee Gas Transmission Co. crew constructs an underwater steel concrete-coated gathering line across Corpus Christi Bay to tap Mustang Island gas wells, off the coast of Texas

STUDENTS, educators and graduation speakers take stock each June. Editorial writers and retailers take stock at New Year. Sales managers and corporate heads take stock with a new season or the advent of a fiscal year.

Gas industry stock-taking comes in October at the A.G.A. Annual convention. In section meetings and general sessions, business leaders analyse the records of the past year, the problems of the present and the plans for the future.

For more frequent stock-taking, the pages of the MONTHLY reflect the immediate problems and prognosis of the industry. Its solid future is indicated by the report that financial interests invested more money in it during the first nine months of 1951 than in all of 1950.

The gas industry's social consciousness is indicated by stories of the time and money it devotes to the protection and betterment of employees and customers. This is evinced by the designing and promotion of the Heart-Saver Kitchen, and by the consistent advancement and maintenance of standards to give consumers a better product. It is further shown by the efforts being made to provide safe working conditions for employees.

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Industry maps employee safety



Thomas J. Strickler, vice-president, The Gas Service Co., and former A.G.A. president, presented safety improvement awards to 84 company representatives, including G. T. Koch, Panhandle Eastern Pipeline Co.; H. G. Kniese, Central Illinois Light & Power Co.; and H. T. Jayne, Philadelphia Gas Works Company.



Seen together during the conference were Willard E. Lebo, engineer of maintenance, Essex division, Public Service Electric & Gas Co.; M. D. Crane, Hope Natural Gas Co.; Walter D. Deveney, Crawford station superintendent, Peoples Light and Coke Co.; and James Hall, safety director, Equitable Gas Company.

Human failure is the underlying cause of the majority of accidents that take such heavy toll each year on the productivity and manpower of the nation. Whether it be in the shop, on the highways or in the home, the refusal of people to exercise ordinary precautions is largely responsible for most of the accidents involving the worker and the public.

Nearly 150 safety executives heard this basic truth stressed and re-stressed at the second annual Safety Conference sponsored by the Accident Prevention Committee of the American Gas Association, Hotel Phillips, Kansas City, Mo., September 17-18, 1951. These executives represented gas utility and gas appliance companies from nearly every state in the nation as well as Alberta, Canada and Monterey, Mexico. Ways and means of overcoming this fundamental human frailty were outlined in speeches and pictures by some of the leading experts on public and employee safety throughout the intensive two-day program.

W. H. Adams, chairman, A.G.A. Accident Prevention Committee, presided at the conferences. Formerly safety director of The Manufacturers Light & Heat Co., Pittsburgh, Mr. Adams was recently added to the Association staff as safety consultant to assist member companies in formulating safety programs. He welcomed the delegates and outlined the purpose of the meeting.

B. C. Adams, president, The Gas Service Co., Kansas City, Mo., offered delegates the hospitality of Kansas City. He

described briefly some highlights of the recent flood that devastated much of the industrial area of Kansas City. He pointed with pride to the fact that despite the tremendous damage, more than two hundred and fifty flooded-out companies were back in business and more than thirty-two thousand workers are back on jobs that had been washed out.

He complimented the conference on the excellent program that had been arranged. This was a very timely meeting, he declared, because of the depletion of trained personnel due to the requirements of the armed forces and the loss of men to defense industries. This is the time, as never before, to emphasize the necessity for safety and accident prevention.

Human failures to blame

With more than 42 million pieces of equipment on the nation's highways, about 85 percent of our traffic accidents are due to human failures, Dr. Amos Neyhart, administrative head, Pennsylvania State College, and one of the nation's outstanding traffic authorities, told the delegates. To remedy this grave situation, the public must recognize the problems involved in moving this tremendous volume of traffic, and must have a desire to correct these problems. A driver is only as safe as his own ability to drive and as safe as the ability of the other users of the highway. He said that while more people were killed and injured in homes each year than in traffic accidents and in shops, yet the millionth person will be killed

Measures

The success of each safety program depends upon the degree of cooperation and caution exercised by the workers it is designed to protect



Among the conference speakers were Edgar A. Koenig, general superintendent, Texas Eastern Transmission Corp.; Charles Paine, president, Paine Drilling Co.; Edward Hamric, assistant pipeline superintendent, Texas Eastern Transmission Corp.; and R. L. Matheson, safety engineer, Panhandle Eastern Pipeline Company



Active participants in the program of the Safety Conference were Lt. Col. Frank E. Costanzo, corrosion engineer, The Manufacturers Light & Heat Co., Pittsburgh; John Dunner, Mine Safety Appliance Co., Pittsburgh; and James Carnahan, director of safety service, Chicago chapter, American Red Cross

this year in traffic accidents since the motor car was introduced. Manpower is not expendable or replaceable, he declared.

Accident prevention and safety programs are set up essentially because of human values, Dwight S. Sargent, personnel director, Consolidated Edison Co. of New York, stated. [An abridged version of Mr. Sargent's address appears on page 15 of this issue. Ed.]

Safety is an indispensable part of operating, Charles Paine, president, Paine Drilling Co., Dallas, told the delegates. The cost of accidents is high in drilling operations. Efforts to speed up production had increased the accident ratio and necessitated an active safety program in this field. Mr. Paine related the experiences of the efforts of a small group that united in a cooperative program to educate workers on the essential steps in a safety program. Where drillers formerly boasted that they were too tough to get hurt, today field crews take advantage of protective clothes and measures. The benefits derived from that voluntary program are great, Mr. Paine said, but the cooperation of all segments of the industry is needed to make it fully effective.

R. L. Matheson, safety engineer, Panhandle Eastern Pipeline Co., pointed out the many opportunities existing for serious accidents involved in the tapping of high pressure natural gas lines. He presented an interesting series of colored slides showing precautionary measures used by his company in overcoming the hazards encountered in this field of activity.

With more than 375,000 miles of pipeline used to transmit all types of fuel gas in the United States, maintenance and safety go hand in hand, W. A. Johnson, Jr., pipeline superintendent, Texas Gas Transmission Corp., told the conference. Engineering and construction practices have provided the proper safety factors for natural gas transmission lines, and the problem becomes one of maintaining service in the safest manner possible. Maintaining clean, well-kept rights of way, clearly marking the line at road crossings and stream crossings to avoid contact with earth moving equipment or boat anchors, are general preventative practices used.

Common sense needed

Aerial patrols safeguard the maintenance of pipelines, he pointed out. Protective equipment, fire-fighting equipment, combustible gas indicators and other precautionary helps should be on hand at all times during construction and maintenance work. A good safety program and job knowledge coupled with alert and constant reflection on common sense practices will result in a job well done, Mr. Johnson declared.

Planned preventative maintenance, planned good housekeeping and planned proper operation of machinery are necessary for safe operation of compressor stations, E. A. Koenig, general superintendent, Texas Eastern Transmission Corp., said. Fire and explosion of natural gas cannot exist without oxygen. Possible leakage is ever a potential

hazard. Care should be taken to pipe leakage to a safe distance from the station before it is released to air. Employees must know the station and the functions of all its equipment and must know what to do when emergencies arise. Equipment must receive frequent checkings to see that it functions properly.

The importance of good housekeeping should be explained. Oil spilled on floors can cause a serious fall. Maintenance of guards and explosion proof fixtures and lights is just as important as knowing how to handle big emergencies. The person hurt is not always the only one that suffers. In many cases other people become involved through the carelessness of one person.

Accidents cost money for the employee involved in the accident or the equipment damaged, Willard E. Lebo, Public Service Electric & Gas Co., Harrison, N. J., said. In outlining the safe practices followed by his company, particularly in



Dwight S. Sargent, personnel director, Consolidated Edison Co. of New York, Inc. and W. H. Adams, safety consultant, A.G.A., were on the same program as Dr. Amos E. Neyhart, administrative head, The Pennsylvania State College. Dr. Neyhart attributed 85 percent of highway accidents to human failure

production of water gas, Mr. Lebo pointed out that because of the size of the company and the distances between operating points, the responsibility for instruction, training and carrying out safety measures is localized in each department. He mentioned some of the methods used to teach employees to think safely. This, he said, must be an endless job. He recommended the practice of preventative maintenance such as frequent overhauling of equipment, frequent lubrication and other measures designed to promote safe operation.

All of the hazards common to the production of water gas were inherent in the manufacture of coal gas, Walter T. Devaney, The Peoples Gas Light & Coke Co., Chicago, told the safety representatives. The daily processing of coal into coke, gas, and by-products, together with storage and handling of materials and the maintenance work associated with such operations present a formidable problem in safety. With colored slides, Mr. Devaney illustrated many of the hazards encountered in the production of coal gas. He was able to compare methods and equipment used years ago with today's up-to-date methods, emphasizing dangers that had been eliminated or safeguarded.

Great as the progress is that has been made in combatting dangers, it is safe to say that no such progress has been made

against the problems of man-failure, the speaker declared. Companies supply goggles for eye protection, insist on use of safety shoes and special equipment suited to special circumstances. But men still trip over obstacles, cut themselves with tools and endanger their lives and limbs by neglecting to take ordinary precautions. Many even fail to use the safety clothes and equipment because it may cause some discomfort. Protection from man-failures can only result from an everlasting campaign for safety for the individual.

M. D. Crane, Hope Natural Gas Co., Pittsburgh, reported on a review made with Dr. R. W. Miller, The Peoples Natural Gas Co., Pittsburgh, on the methods used in that city to combat one of the earliest and most serious problems of the gas industry. Looking for leaks and finding them has been most satisfactorily accomplished by a group called the "Utility Survey Commission," formed and supported by three gas utility companies and one electric utility company in Pittsburgh. Inspection and prospecting groups are constantly checking every thoroughfare in the city with proper and necessary equipment for detecting leaks. Through the work of this coordinated group the utility companies have been able to maintain a high degree of public safety and have practically eliminated unaccounted for leaks in the city's gas systems.

Despite all the precautionary work, accidents will occur, M. M. Pears, Equitable Gas Co., Pittsburgh, said. No procedure involving the human element is infallible and his company has been able to uncover some unsafe practices as the result of the investigation, reporting and follow-up of explosions, fires and asphyxiations and to remedy some of them.

The real reason for investigating an incident is to determine the cause and to fix the real responsibility for the accident, so that such a cause can be eliminated at other points. In order to illustrate the thoroughness which must be a part of each investigation and report, Mr. Pears followed the procedure that would be employed in his company following a report to a service clerk of an explosion on a customer's premises. Service clerks, complaint men, foremen and often division superintendents may be involved in the case. But when completed, every detail and possible care will have been taken in order to determine the true cause of the explosion. If faulty controls or equipment was involved, care is taken to have all such unsafe conditions corrected at once. The Pittsburgh Utility Survey Commission lends invaluable assistance on particularly difficult investigations, Mr. Pears reported.

Ernest S. Beaumont, The Peoples Gas Light & Coke Co., Chicago, and chairman of the Safety Conference Program Committee presided at the general luncheon on Tuesday, at which awards were presented by 84 gas utility companies which had been successful in improving their accident records 25 percent or more. The presentation of awards was made by Major T. J. Strickler, vice-president in charge of operations in Kansas City, Mo., for The Gas Service Company. Major Strickler, as a former president of A.G.A. appreciated and remarked upon the importance of the work being done in the promotion of accident prevention.

Lt. Col. Frank E. Constanzo, Army Ordnance, spoke on the vital subject of sabotage and attack. Briefly tracing the history of our national security, he charted the present defense set-up comprised chiefly of the National Security Council, the National Security Resources Board, the Department of Defense and its component parts. (Continued on page 43)

United they stand—for progress

A. G. A.-manufacturers' cooperation ups performance standards for appliances

By EDWIN L. HALL

Director, American Gas Association Laboratories

Active cooperation of manufacturers of gas appliances and accessories with the American Gas Association Laboratories has brought about an advance both in the quality of gas appliances, and in the standards under which they are tested. The A. G. A. Appliance Approval Plan was initiated some 26 years ago as a means of industry self regulation through the establishment of basic standards for safety, satisfactory performance and durable construction. Today this program and the Laboratories enjoy a well established and internationally recognized reputation. The role that manufacturers play in maintaining and advancing this position has not received the attention it deserves. It is nevertheless significant and of great importance to the entire industry.

Over the years manufacturers have become well aware of the benefits to be derived from active participation in the A. G. A. Approval Plan for gas appli-

ances and equipment. The underlying principle of self advancement through providing the public with better gas appliances has proved to be a sound basis both for promoting and developing their business. Manufacturers have ceased to be merely "clients" of the Laboratories and have assumed the role of cooperating participants engaged in maintaining and advancing the standards under which appliances and accessories are tested and approved. Under American Standards Association procedures they have always had a voice in such matters, but in recent years they have played an increasingly important part. They have become enthusiastic and enlightened participants in the solution of the industry's common problems and the evolution of new and better equipment.

As a matter of policy, their own national organization, the Gas Appliance Manufacturers Association, encourages enlightened participation in the requirements program. The program, under which industry leaders, consumer representatives, trade organizations and governmental bodies cooperate in setting gas appliance standards, is the heart of the

A. G. A. Appliance Approval Plan. Through its own progressive administrators and members, GAMA continuously points up the benefits of the program and promotes effective participation on the behalf of its individual members.

Using GAMA as an inter-organizational vehicle for consolidating the vast experience of its members along constructive lines which will advance the plan and bring to it their best thinking, the individual manufacturer members of the various requirements committees have added greatly to the stature of the over-all program. Manufacturers representatives on the various requirements sub-committees hold frequent meetings with all of the manufacturers they were chosen to represent. Thus an intimate knowledge of proposed additions or revisions to the requirements are brought, through such preliminary meetings, to the entire manufacturing section of the industry concerned. This procedure contributes to the intelligent consideration and solution of many knotty and technical questions. This has not only been most constructive, but has helped to crystallize opinion and more speedily bring to the attention



of the various requirements committees the most practical and feasible approaches to new problems. It also brings into sharp focus industry thinking concerning the establishment of standards for new types of equipment.

Good requirements cannot be written in many cases until considerable research is performed to determine the extent to which a sub-committee may go in, for instance, improving a performance requirement. While the Laboratories conduct a good deal of such requirements research investigation, often a broader conception is obtainable by requesting manufacturers also to conduct such research in their own laboratories. Manufacturers' contributions of this nature have been extremely helpful to the work of the Laboratories.

GAMA support important

Active GAMA support of the over-all approval plan likewise has brought about a decidedly improved level of understanding of the plan throughout the appliance industry. It regularly brings to its members information bulletins and letters. These cover the latest rulings, interpretations and trends in requirements. Since the number of manufacturers submitting equipment to the Laboratories for testing and approval has increased sharply in recent years, GAMA support possesses added significance. Its cooperative efforts have in large measure helped to keep the approval program operating at an effective and efficient level.

New manufacturers today cooperate with the Laboratories to a greater extent than ever before. Many of them visit the Laboratories to become better oriented and acquainted with the plan and the basic trends in standards. Individual manufacturers on the whole welcome Laboratories inspectors to their plants, considering their services as a definite aid

to the control of production. Often they call for an inspection on their own initiative. This is particularly true when production of a unit is started or resumed after an interruption. They are just as anxious as the Laboratories to meet all requirements and to build a product that will not bring complaints from the field.

Currently manufacturers are doing an excellent job on their production lines in maintaining and controlling the quality of their products in the face of the difficult conditions of an emergency economy. In addition many are making remarkable contributions to the defense effort. Despite the fact that many new firms have entered the gas appliance field during the last few years the quality of gas appliance construction has shown a marked improvement. Unannounced inspections at manufacturers' plants by the Laboratories have revealed very few violations of approval requirements and quality of production control plant-wise throughout the country has steadily risen. This is particularly true in plants of companies entering the gas appliance field for the first time since the end of World War II.

The upward trend in the number of firms entering the field has continued and is being accompanied by a greatly increased number of new types of gas equipment being submitted for approval. Consequently the Laboratories have stepped up their unannounced inspection schedule to keep pace with this development.

Unannounced inspections for the first six months of the year were increased approximately 70 percent over those made during the same period last year and are being continued at an increasing rate. Similarly, inspections of equipment on the customer's premises are being made in substantial volume. These have been conducted at the request of city officials responsible for enforcement of appliance

ordinances, of manufacturers and of utility companies.

Quite apart from the direct operation of the Approval Plan and the every-day business at hand, manufacturers support the over-all advancement of the industry in still another way. They have extended most valuable cooperation to the Association's gas utilization research program, which serves to uncover fundamental technical and design data necessary for the upgrading of the performance of gas appliances. While this phase of A. G. A. activities is financed by utility companies, manufacturers contribute time, effort, field experience, and technical information in no small measure.

Top level talent serves

GAMA members serve on technical advisory groups and sponsoring research committees. A number of them are chairmen of groups at present and are making excellent contributions to the program. Executives or chief engineers usually represent their companies. As individuals they are active in suggesting research projects and as a group often contribute their pooled field experience towards the solution of difficult technical matters. They are generous in supplying technical information and field notes and in meeting with Laboratories and technical advisory personnel. In many instances they have been most cooperative in co-signing equipment to the Laboratories for research purposes.

Thus in many ways gas appliance manufacturers are playing an important and distinguished role in advancing the gas industry. Without their active cooperation and intelligent support the stature of the A. G. A. Approval Plan would not be what it is today. Theirs is a role which raises the esprit de corps of the whole endeavor and makes it possible to meet the challenge of the future with confidence.

PAR papers read before chemists

a PAR activity

The A. G. A. PAR Plan Research Program was well represented at the recent American Chemical Society Diamond Jubilee Meeting. The following papers were presented before the Division of Gas and Fuel Chemistry and the Division of Physical and Inorganic Chemistry:

"Predicting the Interchangeability of Oil Gases or Propane-Air Fuels with

Natural Gas," by Joseph Grumer, Margaret E. Harris and Harold Schultz.

"A. G. A. Laboratories Progress in Developing Methods for Establishing Interchangeability of Fuel Gases for Domestic Appliances," by W. B. Kirk and E. J. Weber.

"Flame Stability Limits of Binary and Tertiary Mixtures of the Gases, Methane, Hydrogen, and Carbon Monoxide; Application to Predicting Burner Perform-

ance with Interchanged Fuel Gases" by Joseph Grumer and Margaret E. Harris.

"The Reactions of Carbon with Steam at Elevated Temperatures" by B. E. Hunt, S. Mori, and Sydney Katz.

Dr. A. A. Orning, Dr. John F. Foster, Dr. Calvert C. Wright, Channing W. Wilson and Arthur E. Sands, members of the American Gas Association PAR Plan Research Committees, took prominent parts in the program.

*Niagara Mohawk enlists housewives' cooperation
with a video dramatization of the steps of conversion*

Television smooths a changeover



The relative heat values of manufactured and natural gas were demonstrated with two large cubes by Don Crawford, assistant to the general gas superintendent, Niagara Mohawk's eastern division.



One of the conversion technicians was televised drilling out burner ports. A close-up of the actual drilling of a burner gave viewers an impact that no amount of still-picture advertising could have equalled.

Two new approaches to the job of keeping customers at home during the 7-9 a.m. make-safe period were used when the eastern division of Niagara Mohawk Power Corporation converted from manufactured gas to natural gas this fall.

The changeover was handled by Conversion and Surveys, Inc. For convenience the division's 142,000 residence customers were divided into 38 sections for the changeover. Newspaper ads and radio spots, as well as broadsides and door-knob bulletins were used.

In addition, a penny post-card was sent to customers in each section two days before the changeover started there. This post-card told the customer his section number and the date of the changeover. He was urged to stay home or make arrangements with the company via the special gas conversion telephone to let the conversion workman in.

The advantage of the post-card is that

no matter if more than one section was involved on any particular date, or if sections were not taken in planned numerical order, the customer had specific information about his own relationship to the changeover, and knew exactly when his house was scheduled for the work.

But the use of television was the most dramatic means of carrying the story to customers. Television station WRGB, Schenectady, has a service area which exactly covers the division's gas territory in Albany, Schenectady, Troy, Saratoga Springs, Glens Falls, Amsterdam, Johnstown, and Gloversville areas.

A half-hour evening program was developed by the publicity and advertising department. Newspaper ads in the areas involved called attention to the program.

Don Crawford, assistant to the division's general gas superintendent, ap-

peared on the program and explained the technical facts about natural gas. Using two cubes, he demonstrated graphically the relative heat values of manufactured and natural gas.

A technician was shown as he converted a typical housewife's appliances. The television audience saw him drill out burners, take a water heater burner to be repaired, and also saw him put a red tag on a water heater which had no vent. To bring home the drama of the changeover, motion pictures of pipelines construction were shown.

Primary purpose of the program was to underscore the necessity of the customer staying home or making arrangements to let the workman in. This was emphasized throughout the program.

Response to the television program indicates that it was an important factor in educating gas customers about the new fuel, and (Continued on page 44)

Model "Heart-Saver" presented by The East Ohio Gas Company and the Cleveland Area Heart Society for Home and Flower Show last winter. Total cost of building and publicizing kitchen was paid by East Ohio



Heart kitchen is demonstrated by Dr. Margaret Austin, one of nation's few women cardiologists, at Women and Children's Hospital, Chicago. Kitchen features high-oven range, open cabinets, conveniently placed sink and work table. Everything is within reach of work stool, eliminating unnecessary steps



Gas gives heart to cardiacs

Local utilities aid Heart Association program to ease kitchen work

a PAR activity

American Gas Association has earned an enviable reputation for leading important industry campaigns. And today, A. G. A. is spearheading an active crusade concerning one of the nation's most serious health problems—heart disease.

Working in conjunction with the American Heart Association and *Woman's Home Companion* magazine, A. G. A. is promoting a revolutionary new kitchen, "The Heart of the Home." Designed particularly for women with heart conditions, the kitchen is based on the most modern work simplification principles. Arrangement of work space, range, refrigerator and cabinets at the most convenient height and location keynote the kitchen's basic plan.

One variation of the kitchen is featured in an article in the October 1951 *Woman's Home Companion*. Known as the *Companion's* Heart-Saver Kitchen, it has been constructed by Mutschler Brothers Company, makers of custom-built kitchens in wood.

Cooperation is keynote

The big job of publicizing this kitchen and others like it has been adopted by A. G. A.'s New Freedom

Gas Kitchen Committee, local gas utilities and the American Heart Association. In key cities throughout the country, gas utilities have constructed model kitchens in cooperation with local AHA affiliates. In Cleveland for instance, the whole job of building and publicizing the model kitchen was assumed by the East Ohio Gas Company. And in Tulsa, Mildred Clark, home service director and Walter Haskew of Oklahoma Natural Gas Co., have been cited by The American Heart Association for being "most generous with time, personnel and money, in drawing plans, securing donations of material and labor from Tulsa concerns, supervising installations and giving innumerable hours to the project." AHA reports the same degree of integration with many other local gas companies, where executives and home service girls have done outstanding jobs to spread knowledge of the kitchen to cardiac women in their territories.

A full scale demonstration model of the *Companion's* Heart-Saver Kitchen will be presented by Laclede Gas Co. during the A. G. A. convention in St. Louis. Bernice Strawn, author of the *Companion* article, will be a featured speaker on the A. G. A. Residential Gas Section's program, announcing new de-

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ISSU



Another view of Chicago's Heart-Saver Kitchen sponsored by Chicago Heart Association and Peoples Gas Light & Coke Co. Airy vegetable bins, towel racks, knife drawer are within reach of knee-hole sink. Based on Dr. Lillian Gilbreth's work simplification methods, kitchen reduces heart strain

Just what the doctor ordered! A well-planned kitchen designed to help cardiac housewives take it easy. In October issue of "Woman's Home Companion," kitchen features cheery colors, work-and-relax center



sign developments. Another duplicate of the *Companion* kitchen is being built by Lone Star Gas Co., Dallas, for the Texas State Fair.

In addition to the *Companion* kitchen displays contributed by Laclede and Lone Star, a complete package of Heart-Saver Kitchen promotion material is now available through A. G. A. headquarters. This package includes a floor plan of the kitchen, a publicity release, a counter card, a reprint and several display ideas. Also, a set of 10 Kodachrome slides and a lecture outline is offered as the basis for talks to women's clubs, schools and colleges.

On a national basis, the program of promoting these heart kitchens by local utility companies is still in its early stages. It is only a little more than a year ago that an AHA committee, headed by Dr. Lillian Gilbreth, dean of industrial engineers and heroine of *Cheaper by the Dozen*, planned the original kitchen. In that short time, A. G. A. and American Heart Association have already accomplished wonders, however. A full-color sound slide film produced by American Gas Association was a major contribution. The film, based on the original Heart-Saver, is a powerful demonstration of how women can arrange kitchen

work to avoid adding new burdens to injured hearts. To date, over 150 copies of the slide film have been circulated to member gas utilities, and have been shown to thousands of audiences. The State Department also has a copy of the film for use in Europe. Inquiries have come from Australia, Canada, Japan, Sweden, Germany, France, and many other foreign countries. Time study engineers, physicians and homemakers in every state are asking for information.

With the A. G. A. sound slide film and a booklet based on it as a beginning, some local heart association affiliates and utility companies stimulated community interest to such an extent that the national office of AHA decided on developing the idea further. A complete program kit was issued as a guide for local groups. One of the main purposes of the enlarged program has been to set up consultation services to which physicians can refer cardiac women for assistance.

Over fifty Heart of the Home consultation services have now been established, and scores of AHA affiliates cooperate with gas utilities to conduct educational programs which use the A. G. A. slide film and booklet. The flood of requests for information about the program in-

dicates a great need, existing today, for the work simplification kitchen.

Another highlight of the program was the kitchen display at the Museum of Natural History during "Employ the Handicapped Week." Columbia University Teachers College later used the same model as the scene of conducted tours for home economists and many foreign students.

Notable progress is now being made in almost twenty communities to inaugurate new Heart of the Home consultation services. Many local utilities are contributing services of skilled personnel, some are financing the building of new model kitchens. Thousands of hours are being spent by gas company executives who serve as consultants, arrange lectures, organize exhibits, and distribute film strips. R. C. Terradell, sales training supervisor at Southern California Gas Co., is a typical example. In recognition of his unceasing effort to promote work simplification and consultation services, Mr. Terradell was recently elected to the board of directors of the American Heart Association's Los Angeles affiliate.

The Heart-Saver kitchen has many variations. The original demonstration kitchen as well (Continued on page 37)

Exploration and drilling key to natural gas supply

By LYON F. TERRY

*Vice-president
The Chase National Bank
of the City of New York*



Photo Courtesy United Gas System

The business of the natural gas companies from California to New England continues to increase as fast as steel can be obtained for new pipe lines. Natural gas produced in this country in 1950 amounted to 6.9 trillion cubic feet, 40 percent more than in 1946. The demand for gas in the Northeast, in the North Central States, in the South and Southwest, and in California greatly exceeds the capacity of existing pipelines. The Pacific Northwest is still without natural gas but hopes eventually to be supplied from reserves within the United States or from Canada. Will there be enough natural gas to satisfy these demands?

The long range problem of the future supply of natural gas was reviewed in my paper presented before the American Gas Association at its Annual Meeting last October.¹ In that paper, reasons were recited for estimating, on what I considered exceedingly conservative premises, that the future recoverable gas supply of this country would exceed 500 trillion cubic feet. Of that total, 180 trillion were proved reserves, and the balance, an amount in excess of 320 trillion, was gas to be discovered in the future. The Committee on Natural Gas Reserves of the American Gas Association raised its estimate of proved reserves to 186 trillion as of December 31, 1950. Approximately 7 trillion were produced in 1950. Otherwise, nothing has changed in the long-range picture. Thus, the most important part of the future supply, that is, more than 60 percent, consists of the 320 trillion or more yet to be found.

The present proved reserves of 186 trillion are 27 times last year's production. By reason of the rapid increase in production, made possible by the boom in gas pipeline construction since World War II, that ratio has been decreasing.

¹ Address presented at the informal meeting of the New York State Utilities Executives, Cooperstown, N. Y., Sept. 5, 1951.

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Four years ago it was 32.5. The ratio of reserves to production will probably continue to decrease, but that in itself need not be disturbing so long as new discoveries continue to exceed production substantially. It is the continual increase in the known reserves that keeps the industry on a sound basis.

This is well illustrated by the history of the petroleum industry in which cries of alarm that we are running out of oil have been raised from time to time since the original discovery of oil 92 years ago.

In 1921, for example, concern over the future supply of oil led to a survey by a joint committee of the American Association of Petroleum Geologists and the United States Geological Survey, which found a proved reserve equal to only 10.6 times the current annual production. The present Committee on Petroleum Reserves of the American Petroleum Institute made its first report as of December 31, 1936, finding the ratio then 11.9. Early in 1944, Harold Ickes, then secretary of the interior, published his opinion: "We're running out of oil"—and proved it. That is, he showed that at that time the known reserves were only 13.3 times annual production. The ratio is now 13.0. That is the difficulty—such statements lead to a misconception.

Estimates of known reserves of both oil and gas are published annually. But the ratio of known reserves to annual production may easily be interpreted by the uninformed as indicating the number of years of future supply of petroleum or natural gas. This would be so if it were not for the continual discovery of new reserves which has for years maintained the reserves to production ratio for oil, while in the case of the natural gas industry, with its rapid increase in production, the ratio has been decreasing moderately.

Natural gas occurs in nature with oil. It was generated by the same geologic processes, is found by the same techniques and is generally discovered in the search for oil. Hence, the future of both

resources will be quite comparable and to find new gas there must be exploration for oil. To find the oil and gas that exist, but are yet to be discovered, will require great effort and increasing costs per barrel and per thousand cubic feet. It will require deeper and deeper drilling, where the cost at great depths increases as a high exponent of the depth, and it will take operations in 50 feet of water off the Gulf Coast where a steel drilling platform may cost \$1,500,000. And in the case of gas, it will require the extension of the present main lines by a gigantic pipeline net work to gather from every square mile found productive, and pulling well pressures down to the last pound.

Until recently, gas has been available to the major pipeline companies in a buyers' market where at first the producer had no choice but to sell. When Tennessee Gas Transmission Co. organized its supply in 1943-1944, the producers were glad to get 5 cents per Mcf. In fact, it was the producers needing an outlet that put Tennessee Gas on the map. Later, Transcontinental contracted for its basic supply at 7 cents, Texas Eastern at 7½ cents, then Texas Illinois agreed to pay up to 10 cents, and any new line to start now would need to pay more. But those prices were for gas that was known and contracted for when the three large lines bringing gas to New York State were originated. It is the reserve of gas that has yet to be found that is going to be expensive and in the long-range future this undiscovered supply will be much larger, more difficult to find, and more expensive than that now under contract.

The future reserves not yet found will be obtained by extensive exploration. The selection of drilling sites will be based upon geology, geophysical surveys of underground strata, and all of the scientific techniques known and to be invented. Such technical methods may indicate the stratigraphic nature of the subsurface but they cannot show whether or not the underlying strata contain oil or gas. They may reduce the probability of dry holes but only by drilling can oil or gas be found.

The results of drilling rank wildcats,

that is, tests intended to find new oil or gas fields, are surprisingly low. The Committee on Exploratory Drilling of the American Association of Petroleum Geologists does a most thorough job of analyzing these results. The committee and its helpers include some 100 geologists throughout the country, headed by Dr. Frederic H. Lahee, geological and research counselor, Sun Oil Company. Dr. Lahee has been analyzing and reporting such data since 1937. His latest report² presents the following interesting ratios for new-field or rank wildcat tests:

Ratio of Successful Tests to Total Rank Wildcats, 1944-1946

Located by technical surveys	12.4%
Located by nontechnical methods	5.0%
Total successful test (not dry holes):	* 1 in 9 or 11.1%
Tests finding fields of 1 million barrels of reserves:	1 in 44
Tests finding fields of 10 million barrels of reserves:	1 in 243
Tests finding (major) fields of 50 million barrels of reserves:	1 in 967

Ratio of Successful Tests to Total Rank Wildcats Drilled and Financed in 1950

Total	11.2%
By major companies	17.6%
By minors and independents	9.2%

Classification of Rank Wildcats Drilled and Financed in 1950

By major companies	24%
By minors and independents	76%

These ratios bear out the prevailing belief in the producing industry that the new fields of the country are largely found not by the well-heeled major companies, but by the many small companies and independent operators who are willing to risk their savings on the chance of striking oil; that these employ geology and technical methods to a smaller degree than the majors, but by sheer number of trials they find the new oil. The Spindletop field was found 50 years ago by Captain Lucas after the United States Geological Survey and the Standard Oil experts rejected the possibilities. The East Texas oil field, the largest reserve ever found in the United States, was discovered by Dad Joiner on a shoestring after the area had been passed up by the majors.

The risks of the oil finder are many. Besides the (Continued on page 39)

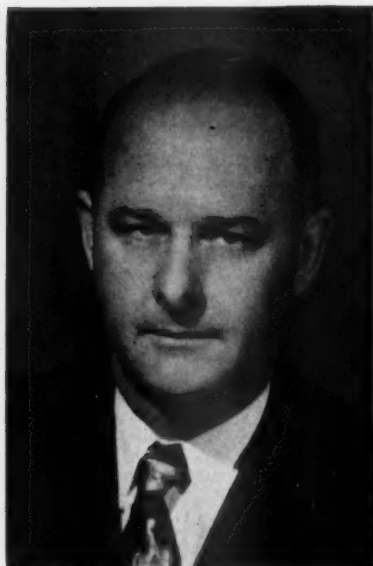
¹ Lyon F. Terry, "The Future Supply of Natural Gas," Proc. Amer. Gas Assn., pp. 135-159.

² Frederic H. Lahee, "Exploratory Drilling in 1950," Bull. Amer. Assn. Pet. Geol., Vol. 35, No. 6 (June, 1951), pp. 1123-1141.

³ Frederic G. Coqueron and Joseph E. Pogue, The Chase National Bank "Financial Analysis of Thirty Oil Companies for 1950"—June, 1951.

⁴ Herbert Hoover, "Engineering's Golden Age," Collier's Magazine, March 3, 1951.

Is your competitive ratio good?



By F. M. BANKS

President and General Manager,
Southern California Gas Company,
Los Angeles, California

*While the volume
of gas appliance sales
increased, the
competitive ratio declined*

We are a big industry and a growing one. In 1940, the gas utility industry served a little more than 18 million customers, including 1,125,000 LPG customers. Nine years later the figure was up 50 percent to more than 27 million customers, inclusive of 5,150,000 LPG's.

During that period, total gas utility revenues have increased 112.0 percent to \$1,948,002,000.

The gas utility industry is the fifth largest in point of investment in plant or facilities with \$7,850,000,000. If one takes into account the plant investments of manufacturers of gas equipment and gas appliances and money invested in LPG operations, the size of the industry is greater still.

In the Pacific Coast states because of the sizeable influx of population the growth of gas utilities has been somewhat above the national figures. For example, in California the number of customers is up approximately 60 percent from 1940.

Truly ours is an industry which has made progress in a solid if not in a spectacular way. But no review could fail to single out the phenomenal expansion in natural gas activity.

In 1940 there were possibly 189,000 miles of natural gas transmission and distribution lines in service. The mileage by 1950 had gone to 314,500 miles. During that same period the number of natural gas customers increased 85 percent. Natural gas reserves have increased 118 percent, from 85 trillion cubic feet to 185 trillion cubic feet. In that same period annual sales of natural gas have ballooned 164 percent to 3.712 trillion cubic feet per year.

Such trends and accomplishments would appear to justify some feeling of complacency, but we all know that the situation allows for no resting on our oars. While our industry has been accomplishing these results, have we actually improved our markets or have we been losing some ground proportionately?

In 1940, roughly 3.9 gas ranges were sold to one electric range. In 1950 the proportion had dropped to 1.65 gas ranges to one electric range—even though the total number of gas units sold was 73 percent more than in 1940.

In 1940 there were 4.4 gas water heaters sold to one electric. In 1950 it was 2.4 gas to one electric, after having dropped below 1.5 to one in 1948. The fact that

the number of gas water heaters sold last year was more than four times as great as in 1940 gives an indication of the great strides being made by the electric industry in the volume of their water heater sales.

Gas refrigerators have never acquired a major portion of the mechanical refrigeration market but there were about 21 percent more sold in 1950 than in 1940. At the same time the share of the total market captured by gas refrigerators has declined. With advances in product design and more competitive prices recently, the gas refrigerator gives promise of acquiring and improving its market position percentage-wise.

Factors of market loss

Among the factors contributing to the gains of our competitors are the following:

A good gas range before the war could be bought for \$150 or less, possibly two-thirds of the price of a fairly good electric range. But now a gas range sells at a price very close to that of an electric range.

Price differential, then, no longer stands as a major deterrent to volume sales of electric ranges, except in the low priced field.

Cost of wiring was once an effective barrier to volume sales of electric ranges and water heaters. Wiring subsidies offered by electric utilities and wiring campaigns designed to induce builders of new homes to wire homes for heavy duty appliances has lessened to a considerable degree the retarding effect of this factor.

And, of course, the oft mentioned promotional efforts of the large organizations who manufacture electric appliances continues to be a factor of importance.

The wide variety of electric appliances makes for greater attraction to dealers. Dealers want the washing machines, dishwashers, television sets and so on; and the electric manufacturers have taken the opportunity to exploit this by pressuring dealers to take electric ranges and water heaters in order to get supplies of the more rapidly moving items. There has been a clear up-trend in the number of electric appliance dealers and manufacturers, the former probably being a consequence of the latter in some measure. The net effect of all this is that purchasers encounter electric appliances more frequently in (Continued on page 42)

Abridged version of a talk before the annual convention of the Pacific Coast Gas Association, San Francisco, August 22, 1951.

Thorough spot checking will maintain
product quality, raise meter efficiency and lessen changes

Acceptance test for new meters

By JAMES WEBB

Consolidated Edison Company
of New York, Inc.

The making of acceptance tests assures the obtaining of the best possible product on the market and is beneficial to the meter manufacturer as well. When defects are disclosed in a sampling of a meter shipment, it indicates the necessity for taking further steps and, where necessary, conditions on the manufacturer's production line can be rectified. Prior knowledge of such conditions will help to prevent the installation of meters on the system which would be subject to failure.

It is important to minimize the number of faults prior to installation since it entails an increased cost to the utilities to change meters, and there is always the question as to how many more will develop defects before periodic meters changes. In these cases, time and money can both be saved by getting conditions rectified by the manufacturer before meters leave the production line.

Along with the increased cost of delayed discoveries of defects, frequent meter changes, trouble calls and bill adjustments do not produce harmonious public relations and satisfied gas customers. Granted that the manufacturers have strict manufacturing tolerances and rigid inspection procedures, we are all aware that occasionally there is a slip up in the manufacturing of parts and assembly of meters. It is not intended, however, that the adoption of an acceptance test procedure by the purchaser should in any way obviate the

necessity for manufacturers' inspections. On the contrary, it should supplement such inspections.

Acceptance testing and inspection are also important in disclosing changes in design and materials. The noting of such changes in construction may at times be important in relating them to

changes in the system performance of the meters.

Before an acceptance test and inspection procedure is made effective, it is necessary to draft specifications of company requirements and the standards that new meters shall meet. These standards are identified as pur-

ACCEPTANCE INSPECTION OF GAS METERS

SHOP REPORT	MANUFACTURER	SIZE
METER NO. PROOF —Open Rate —Check Rate DIFFERENTIAL —Open Rate —Check Rate CASE SEAL —Withstands 40" w.c. PACKING SEAL —Withstands 40" w.c. —Withstands 20" w.c. LOW LIGHT TEST FOUR-POINT TEST INDEX —Number of Circles —Proving Circle C.F. —Test Circle C.F. —Heavy Duty —Light Duty —Spring Type —Rivet Type —Registration —Location TUBE SCREWS —Brass —Steel —Threads —Level SIDE PIPES —Brass —Steel —Tin —Number of Rivets	INDEX BOX —Soldered to Gallery —Drain Holes —Pressed Out —Location CASES —Flanged —Lay on SIDES —Thickness THEFT PROOF BAFFLE —Tube Screw —Channel —Click Type REVERSE STOP —Silent Type —Click Type TANGENT —Regular —Adjustable BACK PLATE —One Piece —Two Piece VALVE COVERS —Metal —Bakelite —Weighted Bakelite CRANK FRAME —Brass —Steel —Bronze Bushing CRANK —Brass —Chromium Plated CRANK BEARING —Brass —White Metal	CRANK ARMS —Brass —White Metal Solid —White Metal Spectacle —Bronze Bushings COVER GUIDES —White Metal —Bakelite Inserts —Brass DIAPHRAGMS —Chrome Retanned —Bark Tanned —Synthetic —Thickness —Number of Seams DISC GUIDE WIRES LUBRICATION OF PARTS PACKING —Felt Washers —Wool Yarn SEALING RING PAINT —ALUMINUM —Gray —Satisfactory —Unsatisfactory MFR'S NAME PLATE —Mfr —Size —Date —Location WORKMANSH: P—Satisfactory —Unsatisfactory
REMARKS:		
DATE	DATE	
INSPECTOR	APPROVED	

The above items shall be checked on meters opened for inspection. The majority of these items may be indicated by a check mark. Those items that do not apply to the meter being inspected are to be left blank. In cases where an item requires an indication of "yes" or "no" or a numeral for clarification, this indication shall be entered. Under "Remarks", enter any further clarification of unsatisfactory conditions found and notations of changes in construction and design.

Use of check sheet assures thorough inspection of meters selected from incoming shipments

A paper presented at the A.G.A. Distribution, Motor Vehicles and Corrosion Conference, April 16-18, 1951, Memphis, Tenn.

chase specifications and are submitted to the manufacturer with each purchase order. Specifications will necessarily vary, depending upon the geographical location of the utility, the requirements of state regulatory authorities and company practices.

Because of the lack of standardization in gas meters, it is necessary to specify as to a large number of items. These include parts with or without which the meters may be furnished, such as disc guide wires, one-half foot test circles, theft-proof baffles and reverse stops. It also makes necessary selections in diaphragm material, valve covers, pipes, tube screws and crank arms, and choices of style in valve box covers, indexes and tangents.

To set up purchase specifications, manufacturers catalogs should be consulted to determine the meters available and the particular parts where choices or selections must be made. In addition, such requirements as limits of proof, leak test pressure for cases and stuffing-boxes, painting and sealing of meters must be specified. It is clearly apparent that a broad field must be covered in setting up purchase specifications. Acceptance tests and inspections will then serve as checks to ascertain that the meters meet the specified standards.

The procedure for making acceptance tests and inspections is as follows:

Meters rated 900 cu. ft./hr. or less, 10-meters are taken at random from each shipment.

Meters rated over 900 cu. ft./hr., 10 percent (but not less than 2) are taken from each shipment. (Shipments of large meters in lots of 5 or less are handled on a special basis.)

Proof tests, differential tests, low light tests, and leak tests are made on all meters sampled and an inspection is made without opening the meters. In addition, two meters from each sampling of ten or more, and one meter from lots of two to ten, are completely opened for inspection of workmanship and materials used.

Acceptance tests have proved valuable to us in detecting meters with incorrect adjustments, and meters that do not record on low-light; the latter condition is caused by poor assembly of parts or defective valve covers and grates. In some instances, valve cover guides have been found to be too high, which will cause non-recording meters on low-light.

The differential test is very important in discovering binds in meters and also in locating diaphragms made of too-heavy skins.

The test for the case leaks is not only for insurance against leaks, but also points at poor workmanship in the sweating of seams.

It is very necessary to check tube screws for proper threads as well as inside dimensions of tube. Tight threads cause servicemen to use undue pressure in making up the cap and liner which places excessive strain on the

tube, causing a leak after the meter has been installed.

The question of checking tube screws for level is something that is not to be neglected in the acceptance test. On the larger size meters, where stiff connections are used, tube screws which are not level cause excessive strain on the meter. This, in turn, may cause leaks to develop.

Proper lubrication of moving parts is very essential and can only be verified when meters are opened for inspection.

When no unusual conditions are found, the entire shipment is accepted and released for use. But when conditions are found such as a meter or meters out of proof or leaking, or where workmanship is unsatisfactory, we have deemed it desirable to take a second sample, double the size of the first and look at the results over-all. Whether a shipment is to be rejected as a result of the first sampling alone, or when deciding what constitutes acceptability, or at what point the manufacturer should be brought into the situation is dependent upon the seriousness of the findings in the opinion of the particular company.

To make certain that all pertinent items are inspected, a checkoff list is used by the inspector. This list may appear lengthy, but from experience, it has proved very valuable. It also serves as a record of what type of parts and materials are in each particular shipment as of the date purchased.

Utilities and LP dealers join for full coverage

The gas industry in the Northwest and other points on the Pacific Coast will be consolidated in a new unified effort. This prediction was made by Frank N. Seitz, general chairman of the sales and advertising section of the Pacific Coast Gas Association and manager of sales for the Southern Counties Gas Co. of California, as a result of a series of meetings of gas utility representatives and liquefied petroleum gas dealers in Oregon and Washington.

The amalgamation of forces of the Pacific Coast Gas Association and the LPGA in presenting the gas story on the Pacific Coast is being timed to coincide with the annual "Old Stove Round Up" sponsored by the American Gas Association. A sales team, representing the two associations and appliance

manufacturers, has already conducted a series of meetings in the Northwest to bring LP dealers into the Round Up sales program.

The meetings, at Medford and Portland, Ore., Walla Walla and Seattle, Wash., drew representatives from gas utilities and LP dealers from as far as two hundred miles around these cities. The success of these meetings will lead to similar combining of efforts of the two gas industries across the nation, Mr. Seitz predicted.

"It seemed ideal to coordinate the sales activities of the two groups with the Old Stove Round Up," Mr. Seitz stated, "because ranges are usually the first appliance that goes into a home and alert salesmen can do a more effective selling job through combination sales."

Mr. Seitz pointed out that previously there were blank spots in the Northwest area served by utility companies and that the two groups are now closing up the gaps with the inclusion of the LP dealers in the Round Up program.

He predicted every hamlet and city from Mexico to Canada and the Rocky Mountains to the Hawaiian Islands would be pushing the Old Stove Round Up with the unified effort of all gas dealers—manufactured, butane, propane, and natural—backed by national and regional advertising.

Ben A. Marsh, Western representative of the LPGA, declared his organization would add some 3,000 LP dealers and salesmen to the sales force of gas utility companies telling the gas story on the Pacific Coast.

*A safety program will succeed only
to the extent that employees believe in it*

Human values in accident prevention



By DWIGHT S. SARGENT

*Personnel Director
Consolidated Edison Co. of New
York, Inc. and Chairman, A.G.A.
Personnel Committee*

An accident prevention or safety program is set up because of consideration for human values. Our first thought in trying to eliminate accidents is not related to the few dollars involved in payments to the individual for the period in which he is not able to work, but it is directed toward the elimination of pain and suffering to those who work with us. And no program will be successful unless designed and administered to win the approval of most employees and supervisors.

We believe that we have in Con Edison a pretty comprehensive safety program. We hold meetings monthly with foremen to review accidents. We give all operating personnel two good safety talks a year, at which we show slides and movies, and discuss safety in its broad aspects. We have posted in the neighborhood of 30,000 safety posters over the properties in the course of a year. We publish articles on safety in our employee magazine, and all of our operating and construction employees are furnished with a rule book which specifies safe work procedures. We compile accident statistics and report periodically on the success or lack of success of the safety program as a whole, as reflected by such data.

This is all to the good, on the strictly

subjective aspects of safety. We sincerely believe that our safety procedures and practices have been effective in the reduction of accident incidence and in the elimination, through education of accident proneness. How many of us, on the other hand, would be in a position to answer, supportably, questions which are directed toward the *objective* aspects of our safety programs? Certainly, in our own situation, and up until very recently, we had never asked the employees, for whom the safety program is designed, what they thought. And we had never asked our foremen, on whom of course, we lean most heavily in seeing to it that the safety program is carried out, whether they thought the safety program was good or whether they felt it ought to be changed or modified in any way. So, we decided we would ask them.

Our initial determination was to sample the opinion of our first line operating supervisors. In order to get a sample of opinion to compare this with the foremen's reactions, we decided to include in our survey some fifty employees who comprised the most recently completed lost-time accident cases.

With the able collaboration of our safety director, we developed a safety program questionnaire. The questionnaire is of the anonymous, multiple choice answer type and as far as we have been able to apply the many years of experience represented by our personnel staff and in our best judgment and belief, it is designed to elicit a frank opinion regarding our safety program. In other words, it is not "loaded" one way or the other.

During three weeks, some 750 of these questionnaires, in duplicate, were given to our foremen at the regular monthly conferences. The fifty accident case employees were provided with copies of the questionnaire through normal company channels of communication. All were provided with a stamped, addressed envelope, in which to return one completed copy, the duplicate to be retained by them for future comparison with the tabulated results which we plan, conscientiously, to publish. Within the first week we had received over three hundred returns from the foreman group and more than half from the accident case group. Results based on over 425 replies tabulated indicate that the pattern which has developed is such that the final returns will not produce any material changes in the reaction percentage figures.

Now, as to the results of the safety program opinion survey to date: you can imagine how gratified we were to find that Consolidated Edison employees really believe that we practice what we preach in saying, "Safety comes first in Con Edison." Eighty percent of our foremen respondents believe that we are fully living up to this policy and another 20 percent believe that we are partially following our own approach. And right here is the first surprise we got. When we looked at the replies to the same question from our accident cases, we found that 90 percent believed that we are fully living up to our "Safety comes first in Con Edison" doctrine!

Another pleasant surprise was in the reactions of (*Continued on page 40*)

Abridged version of address presented at
A.G.A. Safety Conference, Kansas City, Mo.,
September 17, 1951.

Seven types and sizes of pipelines are used
to gather 838 sets of test data on transmission pressure drops

Pipeline-flow investigation

By J. W. FERGUSON

*Natural gas engineer and
A. G. A. cooperative employee,
Amarillo, Texas*

● PAR Project NGD-5, the pipeline-flow investigation, is a cooperative project with the Bureau of Mines. The report here presented describes the test installation for the high-Reynolds number, high-pressure tests on seven short experimental pipelines at Goleta, California. The installation includes a number of novel features requiring special designs and considerable development work. Previous reports have described the review of literature and usage and the low-pressure test installation in the Government's Cliffside gas field near Amarillo.

a PAR activity The pipeline-flow investigation, PAR Project NGD-5, was undertaken in the fall of 1946 as a cooperative project with the Bureau of Mines. The primary objective of the investigation is the development of accurate gas flow formulas for use in designing new gas transmission lines and determining the "efficiency" of existing lines.

A paper was presented at the 1947 spring meeting of the A.G.A. Natural Gas Department at Chicago, marking completion of the first of the four main parts of the study—a review of literature and current usage. The second part of the study, experimentation with comparatively short experimental pipelines, has been completed except for the possi-

bility that some additional tests may be required for rechecking results.

Computation of the resulting large amount of experimental data is progressing. Arrangements have been made to have a major part of the computations made at the Pittsburgh station of the Bureau of Mines by the use of its card-programmed electronic calculator. This will result in a very considerable saving of time. The remaining two parts of the investigation consist of a study of large-diameter pipelines now in service, and correlation of data and development of conclusions.

The first experimental installation for the project was made at the Bureau of Mines' Cliffside gas field near Amarillo, Texas. There, exhaustive tests were run on two-inch diameter commercial pipe. The pressures and volumes of gas available, however, were not adequate for testing lines larger than two-inch to the very high Reynolds numbers that were considered necessary for a complete exploration of the field. The Goleta, Calif., gas storage field of Pacific Lighting Gas Supply Company appeared to offer an ideal site for the remainder of the tests. There pressures as high as 1,000 psi. and rates of flow up to 150 million cubic feet per day or more were available, under conditions that permitted wide variations in experimental flow rates.

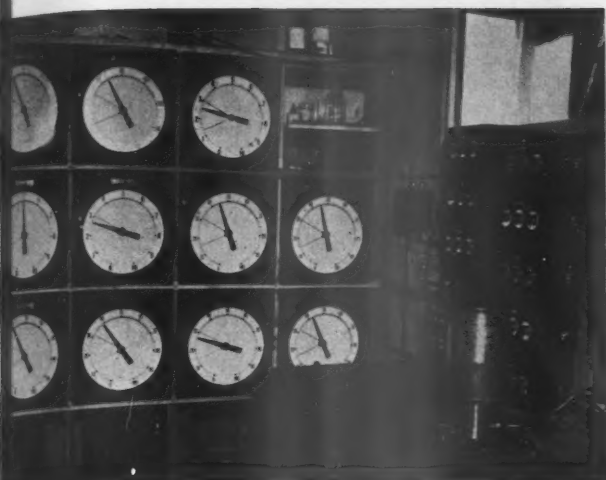
Arrangements were made with Pacific Lighting for conducting the tests, and construction of the test installation was begun in the fall of 1949. Work on the installation was delayed somewhat by heavy rains, and considerable difficulty

was experienced with the instrumentation, so that the first flow tests were conducted on March 23, 1950, practically at the end of the winter withdrawal of gas from the field. These tests were valuable because they showed the need for certain modifications of the flow control and metering equipment and of the instruments.

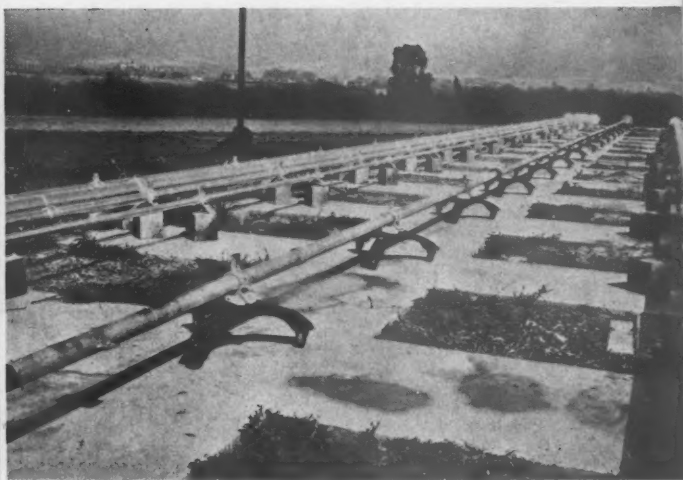
Although tests could not be made during the summer period of injection of gas into the field, advantage was taken of this time to obtain an additional flow control valve and an orifice fitting to expedite the changing of orifice plates during test periods. Also, extensive changes were made in the instruments as a result of laboratory experimentation with them at Amarillo during the summer. The new equipment and modified instruments were installed in the fall of 1950, and the first tests were run the latter part of November.

Pressure drops tabulated

Data on pressure drops in seven experimental lines, each approximately 100 feet long, have been accumulated, totaling 838 sets of test data. The seven lines include four seamless pipelines of two-, four-, six-, and eight-inch nominal diameter; an eight-inch electric-welded line, which was "pickled" after fabrication; a three-inch line made up of three lengths of electric-welded pipe and three lengths of seamless pipe; and a seamless stainless steel line, bored and honed at the Naval Gun Factory to a "mirror" finish and a uniform internal diameter of 3.008 inches.



Instrument house is equipped to give readings for the electrical manometers and measure pressure and temperature in pipelines and orifice meter tube



Spiders and cast iron dollies at 8-ft. intervals facilitate the interchange of experimental pipelines from storage blocks to test position

The flow rates for the tests were regulated carefully and covered a wide range of values of Reynolds numbers. One line, the three-inch superfinished, stainless steel pipe, was tested to a Reynolds number approximating 36 million, which is some 11 times as high as the values reached by Nikuradse in his study of friction factors in smooth tubes in 1932. This value is well beyond the operating range of present day natural gas pipelines. The other experimental lines were tested to Reynolds numbers ranging from 11 million for the two-inch to 26 million for the eight-inch welded line.

Gas for testing the lines was taken from the 16-inch main line from the Goleta storage field to Ventura, Calif., and returned to the same line. A block valve was installed in the 16-inch main line between take off and return points. An instrument controlled back pressure regulator and a four-inch gate valve were installed in parallel with each other, and with the main line block valve, to bypass gas around the block valve, thus permitting essentially normal operation of the main line during test periods.

The installation included a number of novel features, such as the method of changing the experimental runs and the method of effecting a closure of the annulus between the pressure jacket and the experimental lines. Each line is equipped with "spiders" at approximately eight-foot intervals. These spiders, of cast iron, were designed especially for the project, and serve to support and center the pipe as it is pulled into the pressure jacket; they also support the pipe on three-legged, cast-iron dollies (also designed

and especially fabricated for the job) whenever the pipe is moved on the concrete walkway. A depression at the end of the concrete walkway nearest the pressure jacket permits placing or removal of the dollies. One of the experimental lines is seen mounted on the dollies in an accompanying illustration.

The closure of the upstream end of the pressure jacket is of interest. The experimental pipe, plain ended, extends through two especially machined flanges, with a standard rubber coupling gasket compressed between the small flange and a "V" recess in the large flange. Each size of experimental line requires its own pair of closure flanges. The downstream pressure jacket closure is effected by reducing flanges welded to each of the experimental lines. The pressure jacket minimizes expansion and distortion of the experimental lines due to internal pressure. The pressure in the annulus is the same as that at the downstream end of the experimental line.

Make special manometers

Probably the most unusual feature of the entire installation is the set of high-pressure manometers for measuring the pressure drop in the experimental pipelines. Because of the fact that no commercial instruments were available for measuring low differential pressures at static pressures as high as 1,000 psi. to the required degree of precision, it was necessary to design and fabricate nine 100-inch, stainless steel manometers especially for the purpose.

The position of the mercury in the tubes is determined electrically. A very

fine wire (0.002 inch diameter, about half that of the average human hair) of 80 percent platinum, 20 percent iridium, is located in the center of each manometer tube.

When a differential pressure is applied to the manometer, the length of exposed wire (and hence, the electrical resistance) increases in the higher pressure tube and decreases in the lower. The two wires are connected to form two adjacent legs of a Wheatstone-bridge circuit, which is a conventional means of comparing two resistances. The other two legs of the bridge circuit consist of specially wound resistors. As no commercial resistors of sufficient precision could be found at a reasonable price, a set of apparatus was assembled from equipment at the Amarillo Helium Plant laboratory, and the resistors were wound to a very exacting standard of precision.

An electronic, self-balancing potentiometer was used to measure the unbalance in the bridge circuit and thus indicated and recorded the differential pressure in the system.

One of the nine manometers was mounted permanently in a vertical position to measure the differential pressure of a pilot tube installed at the downstream end of each experimental line. Another manometer was mounted in an inclined position, such that the difference in height between the top and bottom was approximately 18 inches. This manometer was used to measure the differential across the orifice plate in the meter run. The remaining manometers were rigidly fastened together and mounted on a pivot so that (Continued on page 41)

They won Oscars for their clarity and completeness



Industry reports are cited for excellence

The best 1950 annual reports in the gas utility and the pipelines field were published by Consolidated Natural Gas Company and Panhandle Eastern Pipe Line Company, respectively. Such was the decision of an independent board of judges for *Financial World* magazine's annual survey of financial reports. Each will receive a bronze Oscar of Industry to commemorate the award.

Second place in the gas utility field was won by the Columbia Gas System, Inc., while third place was attained by The Brooklyn Union Gas Company.

In the newly created pipeline division of the survey, second place went to Mississippi River Fuel Corp., while third place was taken by Tennessee Gas Transmission Company.

Among the combination utilities serving gas, first, second and third place awards were made to:

Eastern Division: Long Island Lighting Co., Mineola, N. Y. (bronze Oscar); Pennsylvania Power & Light Co., Allentown, Pa.; New York State Gas & Electric Corp., Ithaca, N. Y.

Midwestern: Illinois Power Co., Decatur, Ill. (bronze Oscar); The Dayton Power and Light Co., Dayton, Ohio; Wisconsin Power & Light Co., Madison, Wisconsin.

Southern: Virginia Electric & Power Co., Richmond, Va. (bronze Oscar).

Southeastern: Gulf State Utilities Co., Baton Rouge, La. (bronze Oscar); San Diego Gas & Electric Co., San Diego, Calif.; Southwestern Public Service Co., Amarillo, Texas.

Western: Citizens Utilities Co., No-

gales, Ariz. (bronze Oscar); Pacific Gas & Electric Co., San Francisco, Calif., second place.

Bronze Oscars of industry trophies will be presented to the divisional first place winners, at the *Financial World* merit award banquet, Hotel Statler, New York, October 29, 1951.

In addition to the first, second and third place winners, the following gas utility and pipeline companies received merit award citations for the excellence of their reports.

Merit award winners

Gas utilities: American Natural Gas, Arkansas Western Gas, Atlanta Gas Light, Brooklyn Union Gas, Columbia Gas System and Consolidated Gas Utilities.

Consolidated Natural Gas, Consumers Gas (Toronto, Canada), County Gas (Atlantic Highlands, N. J.), Empire Southern Gas, Equitable Gas and Hartford Gas, Honolulu Gas, Houston Natural Gas, Laclede Gas, Kansas-Nebraska Natural, Lone Star and Minneapolis Gas.

Mobile Gas Service, National Fuel Gas, National Gas & Oil, National Utilities (Michigan), North Shore Gas and Oklahoma Natural Gas, Pacific Lighting, Peoples Gas Light & Coke (Chicago), Portland Gas & Coke, Providence Gas, Rio Grande Valley Gas and Rulane Gas.

Suburban Propane Gas, Southern Natural Gas, Southern Union Gas, Union Gas System (Independence, Kansas), Union Gas of Canada, United Gas and Washington Gas Light.

Pipelines: Eastern Tennessee Natural Gas, El Paso Natural Gas, Mississippi River Fuel, Northern Natural Gas and Panhandle Eastern Pipe Line.

Tennessee Gas Transmission, Texas Eastern Transmission, Texas Gas Transmission and Transcontinental Gas Pipe Line.

Reports are judged for excellence of cover design, highlights page, table of contents, clarification of management duties, president's letter, reviews of company progress and development, income-outgo chart, simplified financial statement, background statistical comparisons and stockholder information.

In conducting the eleventh annual survey of financial reports, *Financial World* judges considered five thousand reports in all fields. Of these, 1,521, or 30.4 percent won merit award citations to qualify for the final judging. This compares with 1,305 reports cited a year ago, from a total of slightly more than 2,500 submitted, and marks a new high in the history of the survey.

Honorable mention was given 961, or 19.2 percent more, as having shown improvement, even though they did not qualify for final judging. The remainder—50.4 percent—are considered still backward.

One hundred bronze Oscars of Industry will be awarded to the top winners in the 100 industry divisional classifications. Eight silver Oscars will be awarded to winners in as many broad categories. A gold Oscar will be awarded to the company judged to have published the best report, regardless of classification.

*Translated into electrical equivalents,
flow formulas can be solved by network calculator*

Calculators solve flow problems

By J. P. CLENNON

*The Peoples Gas Light & Coke Co.,
Chicago, Ill.*

● Mr. Clennon's article is a summary of a detailed paper which he and J. K. Dawson, also of The Peoples Gas Light & Coke Co., Chicago, presented at the Distribution, Motor Vehicles and Corrosion Conference, Memphis, April 16-18, 1951. The original paper will be reproduced in the 1951 A.G.A. Proceedings.

With the advent of higher sendouts and pressures on gas distribution systems, the problem of calculating gas flow and pressure drops in distribution systems is becoming increasingly complex. The importance of such calculations can be appreciated when the investment that is required to meet these sendouts is considered.

For the past decade, the electrical industry has employed network calculators as an aid in the design and operation of its distribution facilities. The application of these calculators to the problems of the gas industry has been brought about by a modification of the existing calculators and a change in the operating procedure.

All gas flow formulas when reduced to their simplest forms appear as—

$$P_1 - P_2 = KQ^n$$

where:

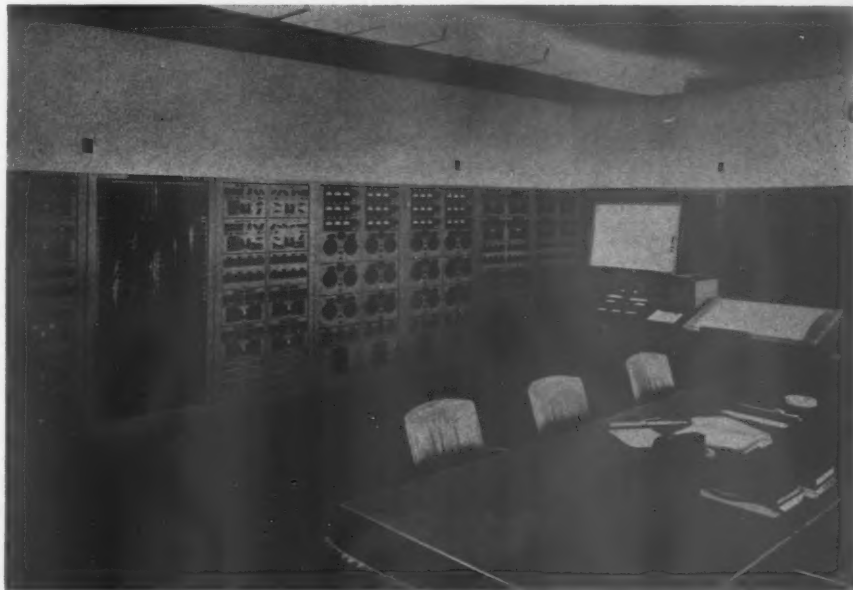
$P_1 - P_2$ = Difference in pressure

K = A constant determined by the formula used, the pipe size and length, and the characteristics of the gas

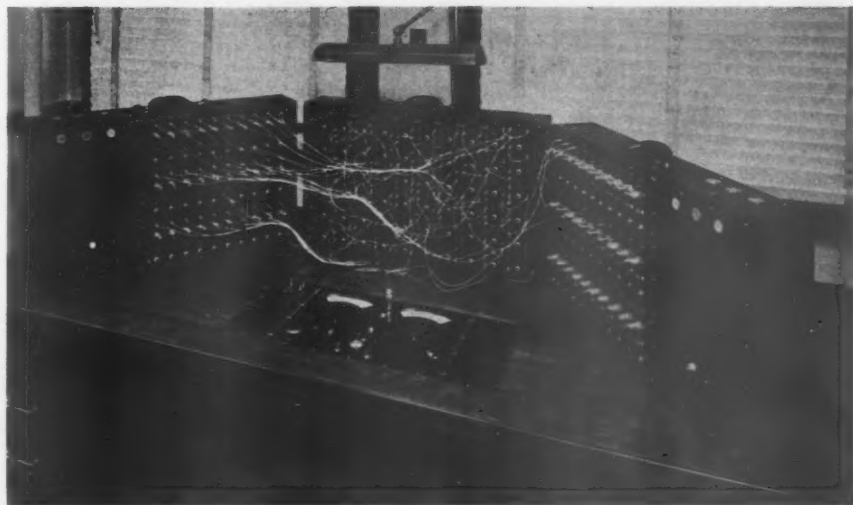
Q = Gas flow

n = An exponent as given in the formula for gas flow.

(Continued on page 37)



The Illinois Institute of Technology's A.C. network calculator was used in this study



The portable D.C. calculator's 60 resistors are adjustable from near zero to infinity

Industry financing rises

The total volume of new capital financing by gas utilities in the first nine months of 1951 has already exceeded that raised in the entire calendar year of 1950, the previous peak, according to a tabulation recently prepared by the Bureau of Statistics of the A. G. A. This provides a further indication that new construction expenditures during the current year are occurring at a higher rate than one year ago, as previous studies by the A. G. A. had predicted. This accelerated growth is taking place despite short-

ages of steel pipe and other vital materials, although it is known that such shortages are acting to delay or postpone some started or previously scheduled projects.

Although the volume of new financing does not in itself provide an accurate measure of construction activity without reference to the amounts of retained earnings and depreciation accruals employed for construction purposes, statistics for both of which are unavailable for the current year, the new financing is nevertheless a valid indicator of construction trends since it seems probable that the amounts raised from internal sources would not have changed substantially since the previous year.

The total volume of financing during these first 9 months of 1951 by straight gas utilities and pipelines was \$799 million, with \$751 million of this amount being raised by natural gas companies. For all straight gas companies, this is 5.7 percent more than the amount raised during the 12 months of 1950, and is 5.9 percent more than the previous total for straight natural gas companies. These data exclude the financing activities of combination companies, which distribute electricity as well as gas. While the need for such financing is occasioned to a considerable extent by the gas operations of these utilities, there is no accurate basis

for determining the amounts required for the respective operations and totals for such companies are therefore less meaningful for analytical purposes.

During the first 9 months of 1951 these combination utilities raised \$551 million; while this does not yet equal the \$811 million raised in 1950, it is probable that their financing during the current year will approach last year's level. In addition to the financing consummated by the straight and combination companies, an additional \$201 million has been obtained by gas holding companies during the current year, compared to \$260 million in 1950.

An analysis of the volume of new security issues sold by straight gas companies, by type of issue, is shown in the accompanying table. This indicates that common stock financing is as yet not equal to that occurring last year, but will probably reach about the same level after giving effect to probable financing during the last 3 months of the year. However, such financing constitutes a smaller proportion of total issues than was the case in 1950. Long-term debt issues are already greater in the first 9 months than in the entire calendar year of 1950, and will undoubtedly far exceed last year's all time peak by the end of the year, while preferred stock issues have also surpassed last year's record amount.

VOLUME OF STRAIGHT GAS UTILITY FINANCING, 1949-1951, BY TYPE OF ISSUE
(Millions)

Type of Issue	All Straight Gas Companies 9 months of			Straight Natural Gas Companies 9 months of		
	1951	1950	1949	1951	1950	1949
Total	\$799	\$756	\$492	\$751	\$709	\$469
Common Stock	45	68	53	44	54	52
Preferred Stock	76	69	23	76	61	22
Long-Term Debt	678	619	416	631	594	395
Bonds	539	387	350	505	373	330
Debentures	61	99	42	61	94	42
Notes and Other	78	133	24	66	127	22

New pipeline in operation

Another natural gas pipeline has been completed to serve the northern and eastern sections of the United States. Trunkline Gas Co., a subsidiary of Panhandle Eastern Pipe Line Co., has announced completion of its natural gas pipeline from Texas and Louisiana to a junction point with Panhandle a short distance from Decatur, Illinois.

The new line will bring from the Gulf area 250,000,000 cubic feet of natural

gas a day, adding to Panhandle's supply for customers in the north and east. Trunkline Gas supplements Panhandle's east-west line, bringing daily system capacity to 850,000,000 cubic feet.

The new line, built at a cost of more than \$80,000,000 was completed 30 days ahead of schedule. Contributing to the speed was the use of a weather-reporting service which enabled the scheduling of work at times when operations in the

affected area might have been suspended. Communications over the line are by microwave radio.

More than 250,000 tons of steel were used in the Trunkline connection, adding up to 1,300 miles of 26-inch and 24-inch pipe. Panhandle Eastern officials indicate that the company's next step might be the completion of a third loop on the system, adding substantially to present capacity.

*To keep stockholders well informed,
financial reports should be thoroughly simplified*

Make it clear, make it uniform

By FRANCIS H. CRISSMAN

*Chairman, Subcommittee on
Financial Reporting, A. G. A.
Accounting Section and Treasurer,
Columbia Gas System Service Corp.*

The problem in connection with our annual reports to stockholders is this: Are we furnishing the stockholders with financial statements which they can understand? If we are, then the problem disappears. But suppose we are not. Then what is needed—education of the stockholders or simplification of the statements or a combination of both?

Our survey shows that the balance sheets and all of the income statements, with one exception, were prepared by the 56 companies in the conventional manner. However, increasing use is being made of a supplemental income statement.

It has been suggested that the technical accounting terms be replaced with so-called layman's language. There is a strong trend in this direction, not too extensive in the certified balance sheet and income statement, but quite extensive in the supplemental income statement.

I wanted to stress the fact that the industry is somewhat in agreement on these matters because from that point on, there is little uniformity.

The first section of the subcommittee's report is devoted to the certified balance sheet. From our survey, I believe I can tell you some of the things you would do if each of you were to prepare a balance sheet for a mythical company and where you would differ in presenting and describing the accounts.

The title will not cause much trouble and most of you would call it a balance sheet. When you come to the sub-head-

ings, 80 percent would use "Assets" and the rest would use such titles as "Assets and Other Debits," "Property and Other Assets," and "Assets and Deferred Charges." The sub-heading "Liabilities" would be used by 70 percent with the remaining 30 percent using such titles as "Liabilities and Other Credits," "Liabilities, Reserves and Capital," "Liabili-



Francis H. Crissman emphasizes the need for simplicity and clarity in financial reports

ties, Capital Stock and Surplus," and "Liabilities, Reserves, Capital and Surplus."

The number of years to be reported would vary. About 25 percent would show a balance sheet for only one year. Ten percent would report three or more years. But most of you would use two years with a few also reporting the increase of the current year over the previous year.

When reporting the amount, about 70 percent would show dollars only, 30 percent would show dollars and cents, and a few would show only thousands of dollars.

Up to now the differences are minor so now let's put down some of the accounts. Here you will differ in three respects: the amount of detail to be shown,

the terminology to be used and the method of presenting the accounts.

First, let's take the plant account. Your first problem would concern the amount of detail to be reported. Many of you would group all items of plant together and report a single amount on the balance sheet. Parenthetically or by footnote, this group would disclose the plant adjustment. Generally it would be indicated that the adjustment was being amortized but only a few would disclose the basis of amortization.

Most of you, however, would detail the property on the balance sheet.

Next let me take an account where your differences will be mainly in terminology. Cash is a good one.

Let's give our mythical company a combination of cash on hand, on deposit in banks, and working funds. Ninety percent of you will agree that all of these items should be lumped together and only 10 percent will show working funds separately. Now, as to terminology, 65 percent would use the simple explanation of "Cash." The remaining 35 percent would use more descriptive captions such as "Cash in Banks and on Hand," "Cash on Hand and on Deposit in Banks," and "Cash on Hand and Demand Deposits in Banks."

Suppose you set up a mental balance sheet for the capital accounts of our mythical company. It has both preferred and common stocks, premiums on both stocks, other capital surplus and earned surplus. We'll give it also two types of long-term debt, one type having current cash requirements for sinking funds and the other having some current maturities. So put those items down on your balance sheet. There is nothing unusual about them, they are just regular accounts.

Sixty percent agree that all of the capi-

tal items should be shown as the first items on the liability side of the balance sheet but opinion in this group is about equally divided as to whether or not the several items may be added together and called "Total Capitalization."

Another group—constituting 30 percent of those studied—will go along with the first group with respect to reporting the stocks and debt at the top of the balance sheet. However, they intend to show the surplus at the bottom. Now we have a small minority group representing 10 percent which has a different opinion. It believes debt should be shown at the top of the balance sheet but that both capital stock and surplus should be shown at the bottom.

Debt reporting varies

Your opinion is well divided on the general method of presenting the capital accounts. But in addition, there are some other differences such as the order in which the securities should be shown.

When we come to the debt, the major difference will be in the treatment of the current obligations. Some will leave them with the long-term debt. Others will include them with Current Liabilities; in some cases combining the sinking fund item and the maturity, and in other cases reporting them as separate items.

The second section of our report deals with the certified income statement. Here is a brief review of what we found. With one exception, the income statements were prepared in the conventional manner and generally covered two years.

Eleven companies used a combined income and earned surplus statement. In doing this there were two methods employed. One deducted dividends from net income to arrive at the retained earnings for the year, after which the balance at the beginning of the year and the miscellaneous credits and debits were shown. The other first added the balance at the beginning of the year to the net income, then reported dividends and miscellaneous credits and debits.

These are the principal differences in the presentation of the income statement. However, the variations in that statement are mainly in the amount of detail reported and the terminology.

The next section of the report covers the surplus statements. As I mentioned earlier, 11 companies combined earned surplus with the income statement.

Thirty-seven companies reported sur-

plus for only one year, 16 reported for two years, one for three years, and one for four years.

There were seven surplus items which appeared with some frequency. Capital stock expense and costs of redeeming debt and preferred stock each appeared 17 times. Tax adjustments appeared 14 times and property and reserve adjustments each appeared 12 times. Profit on sale of property and of investments appeared nine times and five times, respectively. In addition, there were about twenty other surplus items of a special nature.

The next section of the report deals with the notes to the financial statements. As might be expected, there was considerable variation since to a great extent, the notes depend upon the presence of conditions necessitating comment. The most interesting thing is not what was disclosed but what was not disclosed.

Thirty-six companies used a supplemental income statement. Various periods were used; although, the most popular was to show two years or to show the current year and the increase or decrease over the previous year.

Some of the supplemental income statements were only condensed income statements. But many of them were complete simplified statements and explained the various items in layman's language.

Because of the date of this conference, we could not base our survey on the 1950 reports. However, the 1950 reports of 35 out of the 56 companies were reviewed and it is believed that the trend disclosed is encouraging and that these reports are moving, although slowly, towards a more uniform setup.

As I mentioned earlier, we have tried to make the report entirely factual and have resisted, with difficulty, the temptation to include in it our individual or joint opinions.

Educate or simplify?

However, as you work with the annual reports and discuss them with other members of the industry, there are many things which come to mind and I would like to make a few observations. These are my own, and I am not expressing the views of the subcommittee nor, I might add, the views of my associates in Columbia.

Our problem seems to involve that group of shareholders who are the so-called "uninformed stockholders." Numerically it includes the greater part of

our stockholders. Should we attempt to educate this group as to the use of financial statements and the meaning of technical accounting terms? Or should we simplify our statements and substitute layman's language for those technical terms which are not understood?

As to educating the laymen, we could agree, I am sure, that that is a rather large order. However, it becomes more difficult when we find that we in the industry do not agree on the so-called technical accounting terms.

Confusion compounded

Suppose we find that this problem of stockholders' education cannot be solved and we must simplify our statements and use layman's language. If this becomes necessary, our problem may be even greater. Just to give you an example: 27 of the companies using a supplemental income statement in their 1949 reports included an amount which represented net income remaining after dividends. It was described in 23 different ways. Here are some of them: "Retained in the Business," "Reinvested in the Business," "For Future Needs," "For Additions to Property," "For Expansion and Other Corporate Purposes," and "For Surplus." All of the descriptions appear proper but can we expect a layman to know that they all mean the same thing?

When we accountants can start out with accounting terms which are fairly well standardized and can arrive at as many variations as we do, you can imagine what will happen when we leave it to our own individual imagination to develop layman's language.

There are other areas where we should proceed cautiously. For example the use of a supplemental income statement. By putting it in the front of the report and by using a simple setup plus layman's language, we give the stockholder the complete income picture for the year in a manner which he can understand. But since we also include the formal income statement in the annual report, we may have created more confusion. The details of the two income statements will, in most cases, not be the same. On the supplemental statement we usually combine revenues and other income. We may drop the segregation as to operation and maintenance expense and will show salaries and benefits as a separate item. The benefits may include social security tax which is considered as tax expense on the formal (Continued on page 43)

Monthly newsletter will emphasize advantages of gas cooking among commercial equipment buyers and sellers

Launch load promotion publication

a PAR activity

A new and positive force is to be launched in the promotion of commercial gas cooking. The Food Service Equipment Committee of the A. G. A. Industrial and Commercial Gas Section is about to commence the monthly publication of *Flame Facts*, a four-page newsletter designed to carry the gas story to the men who specify and to those who sell volume cooking equipment.

Over the years the supremacy of gas cooking appliances for volume cooking has been well instilled in the minds of appliance manufacturers and gas utility executives. In this secure position, effective competition came as a surprise to the well established commercial cooking portion of the gas industry. Only in recent years did they acknowledge rising competition. Today one of the biggest problems facing the gas industry is competition in the restaurant and hotel kitchen.

This competition has become a serious threat to the valuable commercial cooking load. The Food Service Equipment Committee recognized that advertising and sales promotion material is reaching operators in increasing volume, but that something further must be done if all segments of the volume feeding

field are to be covered. The gas story has not been getting to the men who specify and sell volume cooking equipment, i.e., the architects, kitchen designing engineers and food service equipment dealer salesmen.

To meet this need, a new publication will be directed to this group. *Flame Facts* will present the many positive advantages of gas for commercial cooking. It will rebut by hard, cold facts, but not in any heavy handed way, the misleading half truths and distorted information now being circulated in competitive advertising and other printed media. As the name indicates, it will deal in facts, and only facts. The purpose of the publication will be to help people who sell commercial gas appliances to gain a better understanding of the value of gas as a cooking fuel, and of the advantages of modern gas equipment.

The facts and data to be published in each issue will provide an accurate source of information, not only to meet the arguments of the competition in those areas where campaigns against gas are more aggressive, but also in those areas where it is liable to develop at any time. The publication will serve as an incentive to continue the promotion of gas sales and will help to keep gas sold. If and when the competition steps in, there

will already have been planned a campaign to meet it.

This project was endorsed by the Section Managing Committee and approved by the General Promotional Planning Committee for a PAR activity.

Flame Facts will be mailed each month to member company commercial representatives, restaurant equipment dealers and their salesmen, architects, dietitians and gas appliance manufacturers. Present plans call for bulk mailing of copies to appliance dealers. However, some gas companies have indicated that they would prefer to make their own distribution in their areas. Officials of these companies feel that better salesman readership will be attained if they mail individual copies directly to their homes, than if they are bulk-shipped to appliance dealers' offices and showrooms.

The over-all national plan to distribute *Flame Facts* to all restaurant equipment dealers will be followed except where gas companies agree to distribute it. Local distribution will help this strong pro-gas paper do a more complete commercial gas promotional job.

A mailing list that will ultimately include ten thousand names is in the making. The first issue will be ready for distribution during early October.

Space demand exceeds supply at hotel show

a PAR activity

More applications for space than could be accommodated in the limited area available were received for the American Gas Association Combined Commercial Gas Exhibit in the National Hotel Exposition, Grand Central Palace, New York, Nov. 5-9, 1951.

There are more than four thousand

square feet of combined exhibit space under the Blue Flame Banner at the hotel show. Its steadily increasing popularity indicates the rising interest in heavy-duty gas cooking equipment and related items. The gas area has proved to be an important focal point for equipment buyers, manufacturers and commercial gas men. There is a rising awareness among hotel and restaurant management

that efficient kitchen facilities make an important contribution to their profit picture.

One of the largest groups of manufacturers ever to exhibit in the A. G. A. area under the sponsorship of the Industrial and Commercial Gas Section will show all their latest equipment. Those cooperating in the 1951 show are: American Stove Co., St. Louis; Anetsberger

Brothers, Inc., Northbrook, Ill.; The G. S. Blodgett Co., Inc., Burlington, Vt.; The Cleveland Range Co., Cleveland; Detroit-Michigan Stove Co., Detroit; Duke Manufacturing Co., St. Louis; Gas Consumers Service, New York; Groen Mfg. Co., Chicago; Kewanee Industrial Washer Corp., Kewanee, Ill.; J. C. Pitman and Sons, Inc., West Lynn, Mass.; Robertshaw-Fulton Controls Co., Youngwood, Pa.; Savory Equipment, Inc., Newark, N. J.; A. O. Smith Corporation, Toledo; Vulcan-Hart

Mfg. Co., Inc., New York.

Also growing in popularity is the annual Commercial Gas Breakfast. Attendance this year will be increased by the commercial gas men who are to hold committee meetings the day before, and by members of the Section Management Committee who will meet immediately after breakfast.

Speaker at this year's breakfast will be James A. McCarthy, executive secretary, Hotel Association of New York City. Well-known in hotel circles, Mr. Mc-

Carthy will be a drawing card for this annual affair. He will deliver a message of major interest to gas men, commercial equipment manufacturers and representatives of publications in the food service field.

The breakfast will again give those in the volume cooking field an opportunity to meet and discuss industry-wide problems. It will be held in the small ballroom of the Hotel Roosevelt, Madison Ave. and 45th St., New York, Friday morning, November 9, at 8:30 a.m.

Metal show and convention programs meshed

Activities of the Industrial and Commercial Gas Section at the National Metal Congress and Exposition are scheduled for Thursday and Friday, October 18 and 19, to accommodate those

attending the immediately preceding A. G. A. Annual Convention. The first day is set apart for metal show visitation. The second day will start with the Industrial Gas Breakfast in the Hotel Statler,

Detroit, followed by committee meetings.

The metal show will be held Oct. 15-19 at the Detroit Fair Grounds. The A. G. A. Combined Industrial Gas Exhibit will be housed in Building "G."

Switch to natural gas produces cheaper electricity

An economical use to which natural gas is put in those areas where it is more plentiful and the cost of transportation and distribution is low, is for the production of electric energy. Some large steam generating stations use it under boilers while others use it directly as a fuel in direct connected internal combustion engines and converted diesels.

A typical example of this economical use of natural gas is in the small generating station of the Cushing (Oklahoma) Municipal Light and Power Plant. This community of approximately 8,000 population has a new and modern electric plant with five diesel engine-generator sets. Originally installed to use diesel oil exclusively, the four engines were recently converted to burn both natural gas and diesel oil.

Installed at Cushing are: one engine of 1170 hp, 8 cylinder, (17½" x 25"), 4 cycle, 800 kw. at 257 r.p.m.; three of 750 hp, 6 cylinder, (17½" x 25"), 4 cycle, 500 kw. at 225 r.p.m.; a fifth engine is a 1420 hp, 6 cylinder with supercharger, 1000 kw. at 277 r.p.m. This last mentioned engine was purchased ready to run on oil and natural gas using 19 percent fuel oil and 81 percent natural

gas. When the plant was designed, space was left for the installation of a sixth unit of similar size to the one last mentioned.

The conversion of the four diesel engines was suggested by gas engineers as an economy measure. It had been calculated on a basis of horse power and kwh. production that a combination of gas and oil would reduce power production costs. Four original diesel engines were converted to gas-oil engines using 7½ percent fuel oil and 92½ percent natural gas.

At the time this article was prepared, the latest figures available on operating costs were for the month of January 1950 when power production was 872,500 kwh. For this period 7712M cubic feet of natural gas were used at \$.1811 per Mcf for a total of \$1,396.65. The 17,904 gallons of fuel oil were used at \$.061⅘ per gal. at a total of \$1,096.63. This made a total of \$2,493.28 for both fuels.

The last month during which only fuel oil was burned, before conversion, and for which the kwh. figure was substantially the same, the fuel oil cost was \$4,110.79. Deducting the cost of combination fuel of \$2,493.28, a saving is

shown to be \$1,617.51. This is entirely due to the use of natural gas being used in combination with fuel oil.

The excellent fuel oil supply position of the power plant makes the operation economy from use of natural gas all the more noteworthy. The refinery supplying fuel oil to the plant is across the street and supplies are pumped directly from the tanks of the former to those of the latter. The only transportation costs are those of pumping. With an exceedingly favorable oil supply situation, the margin for savings through use of natural gas was small. This being a municipal operation no tax costs are included. When the plant was operating on fuel oil only, the cost of power production was eight mills per kwh. Since natural gas has been used in greater proportion with fuel oil the cost of power production has dropped to three mills per kwh. Truly a remarkable saving even for a small plant such as this one.

The original suggestion for the conversion of the engines to dual fuel was a result of the enterprise of the gas engineers of the Oklahoma Natural Gas Company in whose territory the plant at Cushing is located.

Underground Storage Committee to be formed

Because of the great interest in underground storage of natural gas, A. G. A.'s Natural Gas Department is forming a Committee on Underground Storage. Under the chairmanship of Fenton H. Finn, vice-president, New York State

Natural Gas Corp., Pittsburgh, the committee will hold an organization meeting in St. Louis during the week of the Annual Convention.

It is the plan of the committee to consider actual and planned expansion of

facilities for underground storage, and to compile records of the amounts injected and withdrawn. The committee will also keep records of the fields which have been developed to date.

Steam purging can rid LPG equipment of objectionable residual matter without further harmful effects

Steam purging an LPG tank

By G. RUSSELL KING

Chairman, A. G. A. Purging Committee, and Senior Engineer, Philadelphia Electric Co.

and

JESSE S. YEAW*

Vice-Chairman, A. G. A. Purging Committee, and Laboratory Director, Rochester Gas & Electric Corp.

It is not recommended, as a general rule, that LPG tanks be purged into service with steam, as the water which is left in the tanks and piping is objectionable. This is particularly true in regions where freezing temperatures may be encountered, or where the liquefied petroleum gas may be pumped into high pressure (200 lb./sq. in. or more) systems and form objectionable hydrates.

Steam may be considered as an agent for purging LPG tanks and equipment out of service. In this case oils, residues, odorants, and sludge of other varieties may be encountered which could vaporize and develop hazardous conditions in an otherwise purged system. These may be difficult to remove safely by any other means than by steaming. Steam has, in fact, been employed for this purpose, but there have been no published data with respect to the details or of the procedures employed in such cases.

Because of the need for such data, the experimental tests which are included in this report were initiated and carried out under the sponsorship of the Purging Committee, American Gas Association.

A standard 30,000 gallon propane storage tank located at the Chester, Pa.

tank farm at the Tilghman Street Gas Plant of the Philadelphia Electric Company was prepared for the steam purge tests by first emptying the tank of its propane and purging it out of service with carbon dioxide followed by air. The manhole cover was then lifted and the piping system indicated on Figure 1 was installed to provide steaming, venting, and sampling points.

Numbers 1, 5, and 7 on Figure 1 were made up of 1/2 inch standard pipe supported inside the tank on temporary wooden blocks. A special fitting which included the two 1/2 inch fittings at Nos. 6 and 7 was made up to fit the opening left by removing the tank level

gage which is normally placed at that point. Numbers 2, 3, 4, and 8 were all standard tank fittings made up with special fittings to facilitate their use for steaming, venting, or sampling as the case required. A pressure gage was installed as shown so that the internal pressure of the tank could be noted at all times during the progress of the purging.

The steam was supplied from a boiler at the Tilghman Street Gas Plant through a 2 inch supply line to the metering run which was located directly in front of the propane tank. The arrangement of this metering run is also indicated on Figure 1. Short hose connections were made between the end of this metering

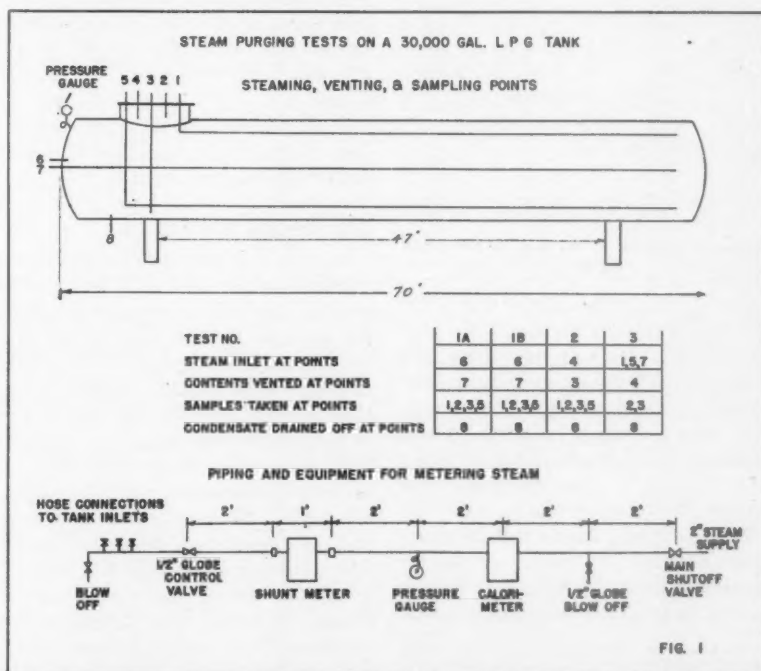


Figure 1. Arrangement of steaming, venting and sampling system for purging test

* Mr. Yeaw passed away August 11, 1951. See page 37, A.G.A. MONTHLY, September, 1951.

run to the required steam inlet points on the propane tank.

Procedure and results

Four tests were carried out as follows:

Test 1-A—Steam was admitted at point No. 6 and the contents were vented through point No. 7. Samples were taken periodically at points 1, 2, 3, and 5. The condensate was drained off at point No. 8.

Test 1-B—After about 3 hours it became evident that the progress of purging in test 1-A was slow and a second steam hose was connected at point No. 6 and the test was continued as before.

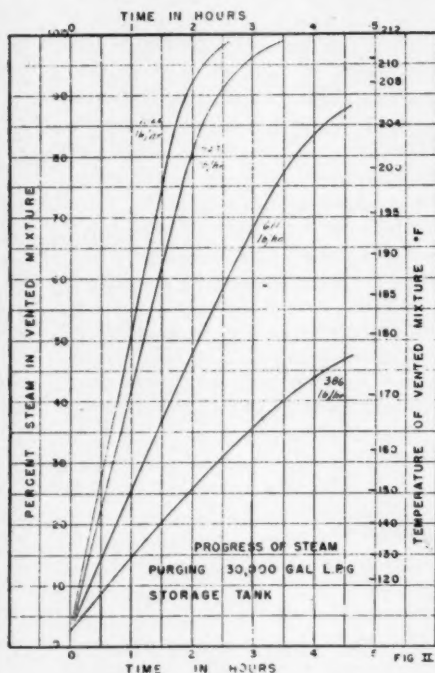


Figure 2. Charting of the progress of various purging tests in a 30,000 gal. LPG storage tank

Test 2—Steam was admitted at point No. 4 through three parallel steam hose connections. This was the fastest rate obtainable with the equipment available for this experimental work. The contents were vented through point No. 3 and samples were taken periodically at points 1, 2, 3, and 5. The condensate was drained off at point 8.

Test 3—It was hoped that by using three different connections a higher steam rate could be obtained, and in this test the steam was admitted at points

1, 5, and 7. The long 1/2 inch piping reduced the flow rate of the steam below that of Test 2, and it was thus indicated that, in order to obtain faster purging, higher steam pressures or larger pipe connections than 1/2 inch would be required. The test was continued, however, the contents being vented at point 4, samples being taken at point 2 and 3, and the condensate drained at point 8.

Analysis of the contents of the tank at each of the sampling points was accomplished by periodically opening the sample lines and bleeding off small quantities at each point through sample tubes in which thermometers were placed. The proportions of air to steam were calculated from data in Keenan and Keyes Steam Tables. These data were checked from time to time by the use of the Steam Purge Indicator.^{1, 2} The results obtained are included on Tables I and II.

The condensate which was drained from point 8 was roughly measured by counting the number of pails of water which was discharged. By this means it was found that some 90 to 95 percent of the input steam was condensed in the tank during the procedures.

Tests 1-A and 1-B were run consecutively on the same day. Tests 2 and 3 were run on the second day, the tank being cooled with a water spray between the end of test 2 and the start of test 3. The weather on both days was clear and there was a mild breeze. The temperature ranged from about 72° to 80° F. the first day and 77° to 85° F. on the second.

Table III includes the data with respect to the steam rates and pressures involved in the four tests.

Discussion of results

In tests 1-A and 1-B the steam was admitted at the near end and vented from the far end. The rate of steam input averaged 386 lb./hour in test 1-A and 611 lb./hour in test 1-B. The data on table I show that the steam evidently blew straight down the 70 foot length of the tank and mixed with the air originally in the tank almost uniformly and immediately throughout the whole purging period. Samples at the far lower end, i.e., point 5, showed the slowest rate of mixing while point 3 at the near lower side showed the highest rate of mixing. However, these differences are considered to be negligible from a practical standpoint, and, furthermore, they had almost disappeared by the time the

purging had progressed by an appreciable degree.

In test 2 the steam was introduced at point 4 and the contents of the tank were vented at point 3. Thus the steam was directed straight down across the near end of the tank and vented from a point almost directly below near the bottom of the tank. The data on table II for test 2 show that, here again, mixing in the tank was very rapid and almost uniform. Data at points 1 and 5 near the far end showed only a little slower mixing rate than at points 2 and 3 at the near end.

In test 3 the steam was introduced through the sample lines 1, 5, and 7 and the contents were vented at 4. Samples could be obtained only at points 2 and 3 but it is obvious from the data in table II that the mixing in the tank was almost immediate from end to end.

The averaged data from tables I and II are shown plotted on figure II. Here it is indicated that the complete steam purging of a 30,000 gallon LPG storage tank at rates of less than 600 lb./hour would be impractical, even under the most ideal weather conditions as in these tests, because of the excessive length of time required to reach the required end point of 98 percent (lower explosive limit of propane is 2.1 percent).³

At a steam input of 743 lb./hour the end point was reached in a little over 3 hours. At a steam input of 1044 lb./hour the end point was reached in a little less than 2½ hours. The relatively small difference in purging time required in these two cases may have been partially due to the difference in the method of introducing the steam in the two cases. In test 2 (743 lb./hour) the steam was injected through 3 separated 1/2 inch tubes against one end of the tank which should be very effective in sweeping the contents of the tank out of the vent point at the other end of the tank at point 3. In test 3 (1044 lb./hour) the steam inlet was 1½ inch pipe and the steam was directed straight down across one end of the tank. From theoretical consideration this procedure might be expected to be less effective in obtaining rapid purging. From a practical point of view, this latter procedure will, most probably, be about the only one which can be employed. The data in these tests show that, in either case, the mixing was extremely rapid and the purging was complete and effective.

It might be pointed out in this discussion of time and steam rates that the at-

¹ See Kruger, R. E. "Steam as a Purging Agent" *Proceedings American Gas Association*, 745(1938).

² See *Gaseous Fuels*—Edited by Louis Shnidman American Gas Association, 258(1948).

³ See *Ibid.* Appendix, page 353.

tainment of at least 160° F. in the contents of a purged atmosphere is generally considered to be sufficient to "top" the volatile constituents of oil sludges thereby eliminating subsequent development of hazard from them. This temperature was attained in a matter of about 2½ hours with even the lowest steam input rate of 386 lb./hour, and in only 45 minutes to 1¼ hours with the higher steaming rates.

One final item should be noted in connection with these tests. This concerns

the effect of the heat on the steel tank and its supports. In this particular case the distance between the pedestals was 47 feet. If it be assumed that the whole tank attained a temperature of 212° F., the calculated expansion would have been 0.52 inches. A measured movement of 0.25 inches was observed, and this, most probably, represented the extent of the expansion. A second effect of the heat was observed on the saddle packing which is a tar impregnated felt. It was noted that the asphaltic filler was soft-

ened which resulted in some oozing of the tar from the edges of the felt.

Acknowledgement

Acknowledgement should be given to the Philadelphia Electric Company for providing the LPG tank for these tests and for providing men and equipment for making up the necessary connections and to the Rochester Gas and Electric Corporation for supplying some of the testing equipment and personnel required in carrying out these tests.

STEAM PURGING TESTS ON A 30,000 GAL. LPG STORAGE TANK

DATA SHEET FOR TESTS 1-A AND 1-B

TABLE I

TIME hours minutes	SAMPLE POINTS, TEST 1-A				PERCENT AVG. STEAM
	1	5	2	3	
Steam inlet at point 6					
Start	72° F.	72° F.	72° F.	72° F.	72° F.
5	82	80	82	85	82
10	95	86	85	98	91
15	100	88	90	102	95
20	104	92	93	107	99
25	112	100	103	114	107
30	116	103	110	120	112
40	122	106	117	124	117
50	125	109	121	130	121
1 0	130	115	128	136	127
10	136	119	132	139	132
20	135	124	136	142	134
40	140	133	143	148	141
2 0	155	146	152	156	152
20	160	148	158	162	157
35	164	152	162	165	161
50	165	155	164	167	163
3 5	166	158	166	168	165
ADDED SECOND STEAM HOSE TEST 1-B					
Steam inlet at point 6					
3 20	175	174	172	174	174
40	182	181	180	182	181
55	186	186	184	186	185
4 5	194	189	188	190	190
20	190	193	192	194	192
30	194	197	197	198	197
5 5	200	200	199	201	200
20	202	202	201	202	202

Date of tests 1-A and 1-B 6/11/51 Weather clear, mild breeze, temperature 72° — 80° F.

STEAM PURGING TESTS ON A 30,000 GAL. LPG STORAGE TANK

DATA SHEET FOR TESTS 2 AND 3

TABLE II

TIME hours minutes	SAMPLE POINTS, TEST 2				PERCENT AVG. STEAM
	1	5	2	3	
Steam inlet at point 4					
Start	77° F.	77° F.	77° F.	77° F.	77° F.
10	118	118	132	148	129
20	133	118	142	156	137
30	150	128	159	169	152
40	160	138	169	177	161
50	175	155	180	184	174
1 0	179	164	185	189	179
10	186	174	191	193	186
20	193	185	197	199	194
30	198	192	202	202	199
50	206	203	207	207	206
2 0	208	206	209	209	208
20	210	208	211	212	210
30	211	210	212	211	211
SAMPLE POINTS, TEST 3					
	2	3	—	—	AVG. STEAM
Steam inlets at points 1, 5, & 7					
Start	78° F.	78° F.			78° F.
5	102	119			111
10	118	128			123
15	123	135			129
25	132	142			137
35	144	152			148
45	152	160			156
55	163	168			166
1 10	174	179			177
15	180	184			182
25	186	189			188
35	190	192			191
45	195	197			196
55	200	201			201
2 5	202	203			203
15	205	205			205

Date of Tests 2 and 3 6/12/51 Weather clear, mild breeze, temperature 77° — 85° F.

STEAM PURGING TESTS ON A 30,000 GAL. LPG STORAGE TANK

TABLE III

TEST NO.	1-A	1-B	2	3
Atmospheric pressure, Barometer Equivalent	29.92 14.70	29.93 14.70	30.11 14.79	30.10 14.79
Steam:				
Valve open	3.13	2.12	2.33	2.33
Average line pressure at meter, psig	94	90	84	97
Average pressure at inlet to tank, psig	60	60	85	65
Average pressure inside tank, psig	1-2	1-2	1-2	1-2
Quality of steam, calculated %	95.8	95.9	95.9	96.1
Quantity:				
Meter reading	1484	1628	3119	2111
Correction factor*	0.815	0.795	0.780	0.820
Corrected steam used	1209	1295	2433	1731
Average steam per hour	386	611	1044	743

* To correct for pressure other than that at which meter was calibrated, and for varying quality.

*"Sittin', not ridin' and ropin' and brandin',
git y' saddle sores," warn alert range bosses, as they
start the drive for the Old Stove Round Up*

Old Stove Round Up hits the selling trail

a PAR activity

The gas industry is talking with a western accent this month, as the A. G. A. and GAMA-sponsored Old Stove Round Up promotion begins its big job of corraling 1,500,000 old gas ranges. Western rodeos, chuck wagons, and contests will be staged in cities all over the country. Film star Esther Williams, chosen the industry's leading saleslady, will give added punch to the promotion in advertisements and displays. Miss Williams is currently starring in Metro-Goldwyn-Mayer's western, "Texas Carnival."

The 1951 promotion, strong as ever, enters a market which some experts think is the most favorable in many a year. With the impetus of relaxed consumer controls as well as noticeable increases in population and housing, sales predictions are soaring to the \$300 million mark.

This year, challenging innovations are making new ranges doubly attractive to consumers. A great deal of research is going on, and some development stage models are ready for the Old Stove Round Up. These ranges are drawing favorable reaction in the higher priced market.

Manufacturers have been doing a lot

of thinking about promoting these and other newsworthy models in conjunction with the A. G. A. Round Up. One manufacturer offers a deluxe model complete with fluorescent lights and a precision electric timer. To increase sales, this manufacturer has prepared a 28-page publication, the largest stove advertisement in history, reviewing past models and previewing the future. Television films are being offered for dealer cooperative advertising.

New models

Some manufacturers are offering ranges with the new automatic ignition and 100 percent safety shutoff. Another innovation is the module range which can be installed at any convenient height or location in the kitchen. First introduced at the A. G. A. Convention's new equipment exhibit last year, the revolutionary idea stole the show, and has been gaining momentum ever since.

Another manufacturer offers a model with gold trim exterior, and a chromium-lined oven. This model has a cutlery drawer, towel rod, automatic ignition and a 100 percent safety shutoff. To help dealers sell it during Round Up time, the company is offering three newspaper ads, a descriptive folder, and a

"tel-u-scope" outlining the sales program to dealers.

One of the best known CP manufacturers has spearheaded its drive with advertisements in 11 national magazines, special sales promotion material, TV spot announcements and full-color movies. All these media point to the swing out broiler, precision heat control and the one piece top burner.

A "Guess Its Age" contest has been suggested by another manufacturer to fit in with the Round Up theme. All the necessary material—guess cards, streamers, counter cards—has been prepared and is available to the hard-hitting dealer.

Member utilities have also planned original, territorial campaigns to boost sales well over last year's quotas. In Hartford, Connecticut, for instance, an unusual "Win the Range You Buy" contest is scoring new gains. The contest, which began on September 10, will continue until October 31. When Mrs. Housewife buys a new range during this contest, she gets a liberal \$20 allowance for her old stove. After the purchase is completed, she enters the Hartford Gas contest, giving five reasons why she chose her particular range. Her answers will be judged for sincerity



OLD STOVE ROUND-UP CONTEST RULES:

1. State five reasons, as briefly as possible, for choosing the gas range you bought.
2. Entries are to be submitted on the official entry blank available at all dealers and the Hartford Gas Co.
3. Each entry will be judged for sincerity and originality of thought.
4. If your entry wins you will be refunded the cost of the range you bought.
5. The gas range must be purchased at the cost of the Hartford Gas Co. retail for use or HARTFORD GAS CO. retail for use or the customer whose loss. In case of ties, the customer whose range was purchased first will be the winner.
6. This contest is open to all customers of the Hartford Gas Co., except its employees, dealers, and their immediate families.
7. The decision of the judges will be final.
8. Duration of contest: Customers must purchase a gas range from the Hartford Gas Co. for a gas appliance dealer in Gas Co. for a gas appliance dealer, during Greater Hartford and Manchester, during The Old Stove Round-Up between September 10 and October 31, 1951 inclusive, and accept delivery by November 10th.

WIN A NEW GAS RANGE!

YOU CAN WIN THE RANGE YOU BUY DURING THE OLD STOVE ROUND-UP!



Manufacturers participating in this contest are interested in knowing the reasons why you selected the particular range you bought, and each manufacturer is giving away a range for the best entry on his product! It's easy too! Just give five reasons, briefly and to the point!

Ask your Dealer or The Hartford Gas Co. for an entry blank when you buy your range. Then fill in the entry blank... leave it with the salesman or simply drop it in the mail box. No postage necessary.

SEE CONTEST RULES INSIDE!

"IT'S OLD STOVE ROUND-UP"



says ESTHER WILLIAMS
"co-starring in Metro-Goldwyn-Mayer's
"TEXAS CARNIVAL"
color by Technicolor

\$20 FOR YOUR OLD STOVE

Sales of ranges are encouraged by Hartford Gas Company's unique contest

Hartford Gas Co. uses billboards to promote the Old Stove Round Up



Cookbook of western recipes may be obtained from A.G.A.



and originality. If she is one of ten winners, she will get her gas range free.

The contest is open to all the utility's 60,000 customers except employees, dealers and their immediate families. In addition to spurring sales of higher-priced ranges, the contest will help manufacturers to design ranges that continue to satisfy the needs of the consumer.

The simplicity of the contest is noteworthy. Every homemaker learns of the contest when her gas bill arrives with an attractive bill-stuffer advertising the contest and the five CP ranges sold by the utility. The entry blank, a generous five by eight-inch business reply card, has lots of space for contest rules and answers, as well as other pertinent information. After buying her range, the contestant just has to drop the card in a mail box, and she is in the running.

Hartford Gas has spearheaded the drive with two newspaper ads describing the contest and giving details of several ranges. A spectacular Old Stove Round Up billboard featuring Esther Williams also aims at more trade-ins for modern automatic gas ranges.

Other utility campaigns are equally hard-hitting. In Minneapolis, a \$13,000 contest is underway in which all dealers in Minneapolis Gas Company's territory

are featuring integrated Old Stove Round Up displays. Public Service Electric and Gas Company's 800 New Jersey dealers are part of a mass drive which begins on September 17. This utility is offering A. G. A. Round Up material free to all dealers, including eye-catching displays of Esther Williams. The Pacific Coast utilities will open their campaign on October 1. Northwest Pacific Coast companies have contributed a special cookbook of original western recipes which all A. G. A. members can obtain. Right in the Round Up country, Lone Star Gas Company, Dallas, has planned an important tie-in with the showing of the Metro-Goldwyn-Mayer film "Texas Carnival."

Traffic stimulators

These individual plans, as well as the A. G. A.-sponsored Old Stove Round Up aim to help dealers stimulate store traffic, build new prospect files and increase the sales of CP gas ranges.

Working on an industry-wide basis, American Gas Association has prepared a broad promotion program, ranging from singing commercials to sample floor plans. Window and Display Bulletin 32, showing sample windows, pic-

tures of available display material such as banners, posters, jumbo price tags, pennants and easel cards promises to "pack enough lead to shoot holes in competition!" Ideas for testimonial advertisements, kiddie contests, plans, especially prepared local publicity releases and advertising mats are offered to help the dealer, manufacturer and utility make the most of 1951 market opportunities.

The industry faces several challenging problems, despite unusually good sales potentials during this Round Up. One of the most interesting is the effect that natural gas is having on appliance sales. In communities where utilities have converted recently, dealers and utilities are discovering that the "romance-angle" of natural gas is a wonderful sales promotion gimmick.

In one community, Nashville, Tennessee, range sales have jumped 300 percent in six years since the advent of natural gas. In the heart of TVA territory, Nashville was predominantly an electric community. But since 1946, the advantages of natural gas have rapidly caught the attention of the community. As other communities experience a similar upsurge of interest in gas, appliance salesmen begin (Continued on page 44)

Industry news

See natural gas as vital chemical source

THE EXCITING FUTURE of natural gas caught the imagination of American Chemical Society members at the diamond jubilee meeting in New York, September 6 and 7, 1951. Two papers, presented before the society's division of petroleum chemistry, pre-

dicted that natural gas can be used not only as a source of motor fuel, but also for vitally needed industrial chemicals.

E. R. Carney, manager of gas division, Warren Petroleum Co., Tulsa, stated that America's motor fuel supply can be increased 14 percent without drilling another well or building another refinery. Nearly 150 million barrels of liquid a year could be condensed from currently available natural gas through methods already developed.

According to Mr. Carney, natural gas liquids can be blended in conventional gasoline for passenger automobiles to a limited extent only, but they can be used as direct motor fuel for tractors, trucks and buses. Used in this way, they could replace gasoline entirely, conserving a sizeable portion of our vital petroleum supply.

P. C. Keith, in a paper prepared in collaboration with J. H. Arnold, told of other equally exciting prospects for natural gas. Mr. Keith, who is president of Hydrocarbon Research, Inc., foresees an industry in which natural gas will be the source of many un-

available or hard-to-get industrial fuels and chemicals. A host of these vitally needed chemicals, in addition to thousands of barrels of gasoline, could be created each year without jeopardizing present or future utility needs. The chemicals produced would include ethyl alcohol, higher alcohols and aldehydes. Ranking high in importance would be the straight chain olefins and acetylene. Ketones, fatty acids, the rare gases krypton and xenon also would be available in greater quantities.

Hydrocarbon Research, Inc., has done some of the research and full scale development studies that provide foundation now for such an industry. According to these studies, the synthetic fuels industry could be based on the Fischer-Tropsch type of synthesis to make high octane gasoline from natural gas.

Particularly interesting is the fact that the environment of the catalyst, i.e., the composition of the gas flowing through the catalyst chamber, is equally as important as the catalyst preparation, both in achieving the desired product and in preserving the activity and selectivity of the catalyst.

Rochester tries experimental gas generator

ROCHESTER GAS & ELECTRIC CORP. has placed in operation a Koppers-Hasche unit to manufacture city gas ranging from 300 to 1,050 Btu. The unit is a demonstration plant with capacity of more than one million cu. ft. of gas a day. It is capable of using gas-

oline, propane, butane, light oil or natural gas as raw material.

This is the first plant in the country for the thermal break-down of natural gas for service use in city mains. The process doubles the amount of gas which it receives by break-

ing it into a lower-heat-content gas through partial combustion in a special furnace.

Dr. Leonard Hasche, designer of the process, presented a full description before the A.G.A. Chemical and Production Conference, May 14-16, 1951.

Loyalty earns merit awards

IN APPRECIATION OF LOYALTY and service during the recent flood emergency, The Gas Service Co., Kansas City, will present merit awards to 525 employees in Kansas, Missouri, Oklahoma and Nebraska.

Announcing the award, Benjamin C. Adams, president and general manager, said, "The recent flood, which affected many of our properties and brought millions of dollars of de-

struction to the area we serve, also called for unprecedented effort from our employees. Many worked day and night without rest or thought of personal safety.

"Their efficiency," he went on to say, "is reflected in the fact that although over 14,000 of The Gas Service Co.'s meters were affected by the flood, only the inundated areas were without gas. Service in other areas was un-

interrupted throughout the entire emergency."

He also told how more than 55,000 man-hours were devoted by employees to flood work and dig-out service during the first 30 days of the disaster. As the flood waters receded, these employees showed the same skill and loyalty in making gas service available again to homes and industries in the area.

A.G.A. announces September publications

LISTED HERE are publications released by American Gas Association during September, 1951, up to closing time of this issue of the MONTHLY. Information in parentheses indicates audiences for which each publication was designed.

Operating

- **Gas Analysis and Testing of Gaseous Materials** by V. J. Altieri (for chemists in

gas and steel industries, colleges). Available from A. G. A. headquarters, \$5.00 a copy for members, \$7.50 a copy for non-members.

- **Reference Book on Instruments for Electrolysis, Corrosion and Cathodic Protection Testing** (for corrosion engineers). Available from A.G.A. headquarters. \$1.50 a copy.

Statistics

- **Monthly (July) Bulletin of Utility Gas**

Statistics of the Month

- **Utility gas sales**—July, 3,124 million therms, down 3.8 percent, 3,247 million therms in June, but up 13.8 percent over 2,745 million therms in July, 1950.
- **Gas-fired central heating equipment**—August preliminary, 52,400 units, up 38.8 percent from 37,600 units in July, but down 64.6 percent from 147,900 units in August 1950. (Breakdown: 31,500 gas-fired furnaces—forced warm air and gravity; 4,600 gas-fired boilers; 16,300 conversion burners)

- **Domestic gas range shipments**—August preliminary, 151,500 units, up 42.25 percent over 106,500 units in July, but down 54.3 percent from 331,500 units in August, 1950.
- **Electric ranges**—71,600 units, down 41.93 percent from 123,300 units in June, and down 52.0 percent from 149,100 units in July, 1950.
- **Automatic gas water heater shipments**—August preliminary, 132,300 units up 11.78

Sales (for sales managers, statisticians, banks, investment houses, newspapers, appliance manufacturers). Available from A. G. A. Bureau of Statistics. Free.

- **Quarterly Report of Utility Gas Sales—Second Quarter** (for sales managers, statisticians, banks, investment houses, newspapers, appliance manufacturers). Available from A. G. A. Bureau of Statistics. Free.

percent over 110,300 units in July, but down 49.1 percent from 259,800 units in August, 1950.

- **Electric storage water heater shipments**—July, 57,000 units, down 21.82 percent from 74,200 units in June, and down 27.2 percent from 78,300 units in July, 1950.
- **Oil-fired burners**—first eight months of 1951, 367,000 installations, down 20.9 percent from 464,200 installations during same period of 1950.

Sixteen utilities represented at SGA workshop

AN even 100 were in attendance at the Home Service Workshop of the Southern Gas Association held in the auditorium of the New Orleans Public Service Co., August 16-17, 1951. Mrs. Arvilla Patison, Lone Star Gas Co., Ft. Worth, presided as sponsor. Mrs. Helen Nichols, West Texas Gas Co., Lubbock, served as secretary.

The program, based on a suggested questionnaire mailed in advance to home service directors and sales managers, was equally balanced between equipment presentations and home service activities. Two demonstrations were presented. "A View at Our Zoo," by Harriet Pruitt, Lone Star Gas Co., Dallas, was a timely selling demonstration on the gas refrigerator stressing new and varied uses of the frozen food compartment. "Let Freedom Ring," a demonstration featuring gas appliances in a New Freedom Gas Kitchen was presented by Laverna Best, Oklahoma Natural Gas Co., Norman. Equipment presentations included "The Promotion of the Laundry," by Margaret Doughty, Bendix Home Laundry Institute; "Economic Pilot," by Van Leach, Hardwick Stove Co.; and the broiler "Vapor Consumer" by L. H. Ernst, Caloric Stove Corporation.

S. L. Drumm, vice-president, New Orleans Public Service Co. and J. L. Campbell, residential sales manager, extended welcomes



Home economists from 16 utility companies attended the Southern Gas Association home service workshop

to those attending the two luncheon programs. Vivian Marshall of New Orleans, chairman, A.G.A. Home Service Committee, discussed the committee's work plan this year. She also spoke of other phases of promotional material of special application to home service work.

Edith Ramsay, equipment editor, *American Home Magazine* high-pointed selling features of automatic washers and dryers during a luncheon conference. Jane Dowdy, Alabama Gas Corp., Birmingham, who discussed effective report writing, was also a luncheon speaker.

New edition of Gas Facts is issued

A NEW ISSUE of *Gas Facts*, the industry's statistical yearbook, has been released by American Gas Association. Composite income statements and balance sheets in dollars for the entire gas utility and pipeline industry for 1937-1950 are included. *Gas Facts* is compiled by A.G.A. Bureau of Statistics.

The new source book contains several improvements. The gas utility industry achieved new records during 1950, and the full extent of these advances is detailed. The edition includes information on sales and associated revenues to large-volume customers of utilities and pipelines by type of industry. All

data relating to gas sales have been restated in therms rather than in cubic feet. Salient statistics concerning the Canadian gas industry are included.

Copies of *Gas Facts* may be obtained from Bureau of Statistics, American Gas Association, for one dollar a copy.

Gas baked the United Nations' birthday cake

THE NEWLY PUBLISHED United Nations cook book, "The World's Favorite Recipes," was edited and kitchen-tested by members of the American Home Economics Association. Published by Harper and Brothers for one dollar, the cook book was a project of the National Citizens Committee for United Nations Day. AHEA is one of the 85 national organizations belonging to this committee.

Through the work of the AHEA, the recipes were adapted to cookery methods commonly used in American homes. Correct baking times and temperatures and exact amounts of ingredients readily obtainable in all parts of this country are given.

One of the recipes was the basis of a United Nations birthday cake, baked in the kitchens of Washington Gas Light Co., and presented to President Truman. During the presentation, the President heard home economics students describe the testing of these recipes of many lands. They told him of the difficulties encountered in translating measurement terms and how they sought clarification of ingredients by study of the *Encyclopedia Americana*. In many instances they searched classified telephone books for distributors of unusual foods. In some instances, having as-



The birthday cake presented President Harry S. Truman, in commemoration of United Nations Day, October 24, was baked in the Washington Gas Light Co. kitchen, under the direction of Home Service Director Ruth Sheldon. It was based on a recipe Mrs. Truman contributed to the recently published U. N. cook book, "The World's Favorite Recipes." Two home economics students made the presentation

certained the nature of the ingredient required, they found it possible to substitute

more commonplace ones that would be suitable in flavor and appearance.

New Jersey Association elects officers

VERNON F. STANTON, vice-president, South Jersey Gas Co., was elected 1951-52 president of the New Jersey Gas Association at its annual meeting, Spring Lake, September 7.

Other officers named at the 36th annual meeting are: first vice-president, Elmer A. Smith, Public Service Electric and Gas Co., Newark; second vice-president, Henry Rohrs, Elizabethtown Consolidated Gas Co., Elizabeth; and secretary-treasurer, W. D. Williams, Public Service Electric and Gas Company.

About four hundred members attended this meeting. One of the principal speakers was George F. Mitchell, president, Peoples Gas Light & Coke Co., Chicago, and first vice-president of A.G.A. A portion of Mr. Mitchell's address is presented elsewhere in this issue.

Seven directors were chosen for varying terms of service. They are D. B. Otto, County Gas Co., Atlantic Highlands; L. I. Pollitt, Jr., Jersey Central Power and Light Co., Long Branch; G. B. Webber, Public Service Electric and Gas Co., Elizabeth; H. P. J. Steinmetz,



Meeting at New Jersey Gas Association convention are (l to r): Secretary-Treasurer W. D. Williams, Public Service Electric and Gas Co.; First Vice-President Elmer A. Smith, Public Service Electric and Gas Co.; President Vernon F. Stanton, South Jersey Gas Co.; Past-President R. H. Phillips, Jr., Public Service Electric and Gas Co.; and Second Vice-President Henry Rohrs, Elizabethtown Consolidated Gas Company

Public Service Electric and Gas Co., Newark; Robert W. Kean, Jr., Elizabethtown Consolidated Gas Co., Elizabeth; E. J. Ingram, Jersey

Central Power and Light Co., Asbury Park; and William A. Gemmel, South Jersey Gas Co., Atlantic City.

Seek inhibitor information

NEW INFORMATION ON INHIBITORS, whether derived from laboratory research or from field experience, is now being collected. One of the technical committees of the National Association of Corrosion En-

gineers, Technical Practices Committee 9 on Corrosion Inhibitors has assumed responsibility for the project.

Contributions ranging in size from one-page observations to complete papers will be

received by Chairman Aaron Wachter, Shell Development Co., Emeryville, California. Papers will be discussed critically by the committee. They will then be published in collected form as a committee report.

New products in brief

● **National Radiator Co., Johnstown, Pa.**—a conversion burner with natural and mixed gas input range from 75,000 to 265,000 Btu per hour. Adjustable for use in either round or rectangular fireboxes. Model also available with lower burner head position, for installation in wet base boilers. Listed by A.G.A.

● **Detroit-Michigan Stove Co., Detroit,**

Mich.—a front-fired all-hot top for commercial ranges. Model has seven front-fired burners, individually controlled. Width has capacity for four large stock pots. Top can be used in ranges designed for manufactured, natural or LP-gases.

● **Chambers Corp., Shelbyville, Ind.**—two new console type ranges, models 41-C and 31-C. Available nationally.

● **Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.**—a modulating thermostatic gas valve for space heaters. Control, known as model V5163, combines bellows, thermostat valve, minimum flame adjustment and safety pilot in compact unit. Can be used in cabins, small homes, incubators, brooders, tobacco curing heating units. Suitable for use with natural, mixed and LP-gases. A.G.A. approved.

Springer's safe construction paper wins top award

MILFORD SPRINGER, chief counsel for Southern California Gas Co., Los Angeles, has been declared winner of the Pacific Coast Gas Association's top award, the Gold Medal. This is the first time an attorney has won.

The award was made at the annual PCGA convention in San Francisco for Mr. Springer's paper "Public Utilities and Their Independent Contractors." Mr. Springer's paper

is considered valuable to the entire industry in that it can be used by utilities to insist on safe construction practices by contractors. Recognition was given also to two other papers prepared by Mr. Springer for the 1947 and 1948 conventions, "A Utility's Liability for an Attractive Nuisance," and "A Utility's Liability for Injury to Trespassers, Licensees, Business Visitors and Privileged Persons."

Unique calendar prepared

SOUTH CAROLINA ELECTRIC and Gas Co., Charleston, has developed an interesting heating calendar. Mailed to all of the utility's customers, the calendar registers last year's daily temperatures and provides space for the homemaker to note day to day changes.

A picture for each month illustrates means of "getting the most for your gas dollar."

IGT graduates twelve as Masters of Gas Technology

TWELVE NEW GRADUATES have increased the alumni roster of Institute of Gas Technology to 35 members. All the men received the Master of Gas Technology degree. By next year, it is hoped that the total will reach 50.

The 1951 graduates are C. William Ade, who joined the Mississippi River Fuel Corp.; Donald W. Bahr, now with NACA Laboratories, Cleveland; Charles E. Brooks, The

Peoples Natural Gas Co.; Richard F. Bukacek, North Shore Gas Co.; Henry S. Drobny, Pacific Gas and Electric Co.; Orin Flanigan, Laclede Gas Co.; Kenneth E. Glessner, Southern California Gas Co.; J. Howard Kerstetter, Laclede Gas Co.; Basil P. Mann, The Peoples Gas Light and Coke Co.; John F. Schomaker, Jr., Panhandle Eastern Pipe Line Co.; Frederic P. Wehrle, Colorado Interstate Gas Co.; Gerald G. Wilson, North Shore Gas Co.

IGT educational and research activities have been serving the gas industry since 1944. Of the 1,700 universities, colleges and technical schools in the United States, it is one of the select 100 that confers the doctor of philosophy degree. And while the number of graduates is not large when compared to alumni rolls of universities, analysis reveals that the roster is remarkable for a school so young and specialized.

Brooklyn Union elects top executives

THE BROOKLYN UNION GAS COMPANY has announced the election of Hugh H. Cuthrell as president and John E. Heyke, Jr. as executive vice-president. Formerly a vice-president, Mr. Cuthrell succeeds Clifford E. Paige, who remains as chairman of the board. Mr. Cuthrell will serve also as director and member of the executive committee, replacing Benjamin G. Neilson, who will retire soon.

Mr. Cuthrell has been with Brooklyn Union for 24 years. After serving as engineer's assistant, sales engineer and manager of the new business department, he was appointed assistant vice-president in January 1936 and vice-president in August the same year.

Mr. Cuthrell was president of American Gas Association in 1950 and has been active for many years in association work. Currently a director and a member of the Executive Com-

mittee, he has served on the Managing Committee of the Commercial Gas Section as well as the Trade and Dealer Cooperation, Domestic Gas Research, Personnel Practices and National Advertising Committees. In 1932, he was given the Charles Munroe award for noteworthy and meritorious work in merchandising and dealer cooperation. As president of Gas Exhibits, Inc., the industry's New York World's Fair organization, he was largely responsible for the success of the exhibition.

Mr. Heyke joined Brooklyn Union in 1933 as cadet engineer. He has served as salesman, district representative, district house heating supervisor and assistant personnel director. Mr. Heyke's career was interrupted during World War II when he was called to active duty in the navy. A month after his discharge from the armed forces in 1945, he was ap-



H. H. Cuthrell



J. E. Heyke, Jr.

pointed assistant vice-president, the post he has held until his present appointment.

Mr. Heyke is also a member of American Gas Association, and during 1951 served on the Natural Gas Department's Large Volume Sales Policy Committee.

Columbia subsidiaries name five women

SEVERAL young home economists have begun careers in the gas industry. Manufacturers Light and Heat Co., Pittsburgh, has announced four appointments while Binghamton Gas Works, Binghamton, N. Y., has named one young woman as home service counsellor.

Manufacturers Light and Heat announces that Janet Evans, a 1951 Penn State graduate, will direct a new home service center at New Brighton, Pa. Lenore Retzer will be in charge of home service in Washington, Pa. and neighboring communities. Miss Retzer, who holds a B.S. degree in home eco-

nomics from Indiana State Teachers College, succeeds Mrs. Dorothy Longmore now at the Hilltop home service center, Pittsburgh.

Joan Overholt, a 1951 Cornell graduate, will be in the company's home service office at Gettysburg; while Jean Slavin, who was graduated from Mercyhurst College this year, will be in the New Castle office.

Dorothy Farrell, formerly a restaurant dietitian, has taken over the responsibilities of home service program director at the Binghamton Gas Works. She is a Carnegie Institute of Technology graduate.

Personal and otherwise

Ohio Fuel Gas promotes

HOWARD LECKRONE, employee relations director of The Ohio Fuel Gas Co., Columbus, has been named Zanesville district manager. William E. Hoare is now employee relations director.

In his new post, Mr. Leckrone directs the distribution operations of an area covering 5,405 square miles and serving 86 communities. With the company 31 years, Mr. Leckrone succeeds the late Fay B. Seaman.

Mr. Hoare has served Ohio Fuel since 1926. Before his present appointment, he was assistant employee relations director.

Ritenour and Pike advance

TWO EXECUTIVE APPOINTMENTS have been announced by Washington Gas Light Co., Washington, D. C. Otis H. Ritenour has been elected vice-president, while Carroll C. Pike, formerly assistant controller, will take Mr. Ritenour's place as controller.

Mr. Ritenour has served Washington Gas Light since 1925. He became assistant treasurer in 1933 and controller in 1942. A member of American Gas Association, Mr. Ritenour is a past-chairman of the Accounting Section, and now serves on the Managing Committee. He is also a director and past-president of the

Maryland Utilities Association and is a national director of Controllers' Institute of America.

Mr. Pike has been employed by Washington Gas Light since 1930 and became assistant controller in 1948. He is a member of American Gas Association and the Washington Board of Trade.



O. H. Ritenour

Southern Union advances two engineers

TWO Southern Union Gas Company engineers, both of Dallas, have been promoted. Van Thompson has been appointed manager of the newly created exploration department and N. P. Chesnutt has been named chief engineer.

Mr. Thompson joined Southern Union when the company was formed in 1929. He was transferred to Dallas as engineer and superintendent of gas measurement in 1938 and became head of the engineering department in 1945.

As manager of the exploration department, he will have general supervision of land and lease operations, geological studies, drilling, production and marketing activities, gas sup-

ply and reserves.

He is a member of National Association of Corrosion Engineers, Mid-Continent Oil & Gas Association, Southern Gas Association and American Gas Association.

Mr. Chesnutt joined Southern Union in 1935, after graduation from the University of Oklahoma School of Engineering. He worked in the company's West Texas properties and was serving as district engineer in 1941 when he entered the U.S. Army. He rejoined Southern Union in 1946, and served as field superintendent in northwestern New Mexico. Mr. Chesnutt has been in the Dallas office since 1948. He is a member of National Association of Corrosion Engineers, Southern



Van Thompson



N. P. Chesnutt

Gas Association and American Gas Association.

Executives promoted at South Jersey Gas

FIVE KEY EXECUTIVES have been advanced to more important positions at the South Jersey Gas Co., Atlantic City.

Vernon F. Stanton has been elected vice-president of the company, replacing E. J. Menerey, who resigned recently. Formerly general commercial manager, Mr. Stanton has been in the gas industry for 32 years. He is vice-president of New Jersey Gas Association, and a member of American Gas Association.

Frank H. Darlington, the new general superintendent of operations, joined Peoples Gas Co., Glassboro, in 1922, and in 1945 was made general superintendent of distribution and manufacture. He continued in that job when Peoples Gas became the Glassboro division of South Jersey Gas Company. He is a past president of New Jersey Gas Association and a member of American Gas Association.

Hugh L. Wathen, named general sales manager, has served the company for 24 years. He was formerly sales manager of the Atlantic City division. A member of A. G. A., Mr. Wathen served on the Residential Section's Nominating and Advisory Committee this year.

Edgar H. Mattson, new sales manager of the Atlantic City Division, started with South Jersey Gas in 1937 as a sales clerk. A member of A. G. A., Mr. Mattson is active in the



Earl Smith, president, South Jersey Gas Co. (seated right) congratulates Vernon F. Stanton (seated left) newly elected vice-president. Also promoted at recent board of directors meeting are (standing left to right): Raymond H. Young, Frank H. Darlington, Hugh L. Wathen, Edgar H. Mattson, William A. Gemmel

Comparison of Competitive Services Committee.

Raymond H. Young, former commercial manager of the Atlantic City division, was named general commercial manager. He has been in the gas business since 1923, starting

with Public Service Electric and Gas Co., Camden. He came to Atlantic City in 1935.

Additional responsibilities were also given to William Gemmel, secretary-treasurer, who will take on general supervision of commercial operations in addition to his accounting work.

Ohio Fuel Gas promotes seven in two divisions

THE OHIO FUEL GAS CO., Columbus, has announced several personnel changes in the production and pipelines divisions.

Promoted in the production division are A. J. Long, assistant manager of production; F. E. Adams, assistant superintendent of lease department; A. J. Bennett, superintendent of lease department; J. F. Nolan, superin-

tendent of right-of-way department; H. A. Titsch, superintendent of civil engineering and map departments.

In the transmission division, J. H. Lang was named to the newly created post of assistant manager of transmission. G. S. Beitler succeeds Mr. Lang as superintendent of the pipelines department.

Harrison replaces James at Harrisburg

RICHARD L. JAMES, operating manager, The Harrisburg Gas Co., retired on August 31. He had been in charge of all production, distribution, customer service and construction activities. John L. Harrison has been appointed operating manager.

Mr. James had been in the operating department of the Harrisburg Gas Co., and its affiliated companies in The United Gas Improvement Company for 36 years. Before going to Harrisburg, he was with The Philadelphia Gas Works Co., and in the construction divi-

sion of U.G.I. He is a graduate of Lehigh University, a registered professional engineer and a member of American Gas Association.

Mr. Harrison, previously with The Harrisburg Gas Co., is being transferred from his present position as gas engineer at The United Gas Improvement Co., Philadelphia. A graduate of the University of Pennsylvania in mechanical engineering, his entire 18-year business career has been with U.G.I. and affiliated companies. He too is a member of American Gas Association.

Perry retires

ARCH C. PERRY, superintendent of mechanical engineering, The Peoples Natural Gas Company and New York State Natural Gas Corporation, retired on September 1.

A veteran of over 37 years service, Mr. Perry has been supervisor of Peoples and New York State Natural's compressor station installations since 1936.



Richard L. James



John L. Harrison

Chief engineers appointed

HOWARD M. JOINER has been appointed chief mechanical engineer of The Peoples Natural Gas Co., Pittsburgh. Robert S. Jefferies has been named to serve in the same capacity for New York State Natural Gas Corp., also in Pittsburgh.

Mr. Joiner will have charge of numerous compressing installations in western Pennsylvania, while Mr. Jefferies, who joined the company in 1938, will have charge of compressor installations in Pennsylvania and New York. Mr. Jefferies is a member of American Gas Association.

Conover joins utility

RICHARD L. CONOVER has been appointed assistant to the vice-president and general manager of Kentucky West Virginia Gas Company.

For the past two years, Mr. Conover has been employed by the Sunbeam Corporation. Before that, he served the firm of Duff and Phelps, an organization for studies of gas utility operations, and the North Shore Gas Co., Waukegan.

A graduate of Northwestern University, Mr. Conover is a World War II veteran of the Army Air Corps.

Nichols named sales head

THE Philadelphia Gas Works Co. has announced that James O. Nichols has been appointed sales manager. Mr. Nichols was formerly manager of major appliances at Kaufmann's Department Store, Pittsburgh, where he supervised merchandising activities for nine years.

A graduate of The University of Pittsburgh, Mr. Nichols was affiliated with West Penn Power Co. before he joined Kaufmann's. He was engaged in the management of the utility's appliance sales, service and promotion.

Adams appointed A.G.A. safety consultant

WILLIAM H. ADAMS, who has served as safety director of the Manufacturers Light and Heat Co., Pittsburgh since 1935, has been named safety consultant for member companies of the American Gas Association.

He will direct the enlarged and intensified accident prevention program for gas utilities which will be conducted by the Association. His duties will include analyzing successful safety programs of member utilities and disseminating safety information to the industry, as well as the preparation of safety films, posters, training material and safety plans of individual companies.

For the past year and a half, Mr. Adams has been chairman of the Accident Prevention Committee. Since he began working for the Citizens Gas and Electric Co., Ohio in 1905, Mr. Adams has had wide experience in both manufactured gas and natural gas operations. He joined the Ohio Fuel Gas Company in 1927, and when he retired this year, he had served the Pittsburgh Group of the Columbia Gas System for 46 years.

Mr. Adams is succeeded at the Manufacturers Light and Heat Company by A. R. Kelliher, a staff member of the employee relations department for the past six years.



W. H. Adams



A. R. Kelliher

Supervisory changes by Pittsburgh utility

SEVERAL PERSONNEL CHANGES in the supervisory organization of The Manufacturers Light and Heat Co., Pittsburgh, were announced recently.

Oren O. Todd was named manager of the distribution district which includes Beaver Falls, New Castle, Ellwood City and Emlenton, Pa. Mr. Todd has served as assistant sales manager in charge of industrial gas since 1948. Former manager D. W. Brown, a 47-year veteran company employee, will remain at Bellevue district headquarters at consultant.

J. N. Betz, formerly with the associated Cumberland and Alleghany Gas Co., succeeds Mr. Todd as assistant sales manager.

Howard S. Weidner has been appointed district superintendent, a new post created to supervise construction in district three. He was formerly foreman of distribution work at Bellevue. Harry L. Broschius, acting local manager of the offices at Steubenville, Toronto and Cadiz, has been named superintendent of district number four.

Manufacturers Light and Heat names Batten

FRED W. BATTEN has been named to the newly created post of vice-president and assistant general manager, The Manufacturers Light and Heat Co., Pittsburgh.

Mr. Batten is also vice-president and assistant general manager of the associated gas companies, which with the local firm, comprise the Pittsburgh Group of the Columbia Gas System.



F. W. Batten

A graduate of the University of Michigan, Mr. Batten entered the gas utility business with The Brooklyn Union Gas Co. as a chemical engineer. He joined the Columbia Gas System in 1936 in the gas distribution department of the Binghamton (N. Y.) Gas Works. Subsequently, he was named superintendent of the associated Home Gas Co., and district manager of the Binghamton company. In 1946 he entered the home office of the Columbia Gas System in New York, and when recommended for his latest promotion was serving as assistant vice-president of Columbia Gas System Service Corporation.

Mr. Batten is a member of American Gas Association.

Executives advanced at Hope Natural

SEVERAL TOP MANAGEMENT changes have occurred at Hope Natural Gas Co., Clarksburg. L. L. Tonkin, formerly president, is now chairman of the board of directors. John A. Clark will succeed Mr. Tonkin as president. Other top level changes are: E. H. Tollefson, vice-president in charge of operations; E. Wayne Corrin, vice-president in charge of gas supply and control; Burl R. Nuzum, general superintendent; Newell C. Comfort, superintendent of compressing stations and gasoline plants.

Mr. Tonkin, a member of American Gas Association, has been in the gas industry since 1903, when he began holding summer vacation jobs. After graduation from Cornell in 1912 with a mechanical engineering degree, he joined Hope Natural as a meter engineer. He advanced through the years, until 1932, when he was named vice-president and member of the board of directors of Hope Natural, HC&R and River and Connecting companies, and chief engineer of Reserve Gas Company.

In 1939, he was elected president of Hope Natural and the above affiliated companies, and general manager of Reserve Gas Company.

Mr. Clark, also a member of American Gas Association, joined Hope Natural Gas Co. in 1912. He, too, graduated from Cornell University with a mechanical engineering degree. In 1944, he was appointed general superintendent and chief engineer, and in 1947 was made vice-president in charge of operations.

E. H. Tollefson, who joined Hope Natural as manager of the land and geological department in 1939, was serving as general superintendent of the company when his newest appointment was announced. He is a graduate of the University of Michigan and an American Gas Association member.

E. Wayne Corrin has served Hope Natural since 1933, when he was employed as a lease and right-of-way man following his graduation from the University of Virginia Law School. When Consolidated Natural Gas Sys-

Dando succeeds Close

CLYDE T. DANDO has been appointed manager of the Millersburg division, Ohio Gas Company. He succeeds William G. Close, retired, who continues as production consultant culminating 38 years' employment by the company.

Mr. Dando has served the gas industry since 1934, when he was employed by the Pottsville Gas Co., Pottsville, Pa. He has subsequently held positions in Waynesboro, Pa., Martinsburg, W. Va., Salem, N. J., Chambersburg, Pa., and Rochelle, Illinois.

Eversole promoted

DR. JAMES F. EVERSOLE has been appointed manager of research administration, Union Carbide and Carbon Corporation. In his new position, he will help coordinate research activities of all corporation laboratories where basic research and development work is being done on alloys, chemicals, gases, carbons and plastics.

Dr. Eversole has served the chemical research organization of Union Carbide since 1929, when he joined the corporation as a research chemist. In 1944 he was appointed superintendent of Linde Air Products Company laboratories in Tonawanda, N. Y., the position he held at the time of his present appointment.

tem established a central gas control and gas dispatching office in 1947, he was made the first system gas dispatcher and a member of management's estimating committee on load forecasting and gas requirements and supply. In addition to his new duties as vice-president in charge of supply and control, Mr. Corrin will serve as a member of the board of directors and of the system's gas estimating committee. He is a member of A.G.A.

Burl R. Nuzum, who was named general superintendent, is a veteran of 35 years' service with the company. Starting as a tool dresser in the field, Mr. Nuzum received successive promotions until he was made superintendent of compressing stations in 1944. He was serving in that capacity when his latest promotion was announced.

Newell C. Comfort, who takes Mr. Nuzum's place as superintendent of compressing stations and gasoline plants, joined Hope Natural in 1936 as a mechanical engineer. He was made division engineer in 1947.

Promote operating and accounting personnel

LONG ISLAND LIGHTING CO., Mineola, N. Y., has announced several personnel changes in its accounting and gas operating departments.

James F. Daly has been appointed assistant comptroller. An employee of Long Island Lighting since 1920, Mr. Daly is an active member of American Gas Association's Accounting Section.

Samuel Horsfield, assistant gas operating and production manager, has been selected to

study the company's distribution, transmission and production facilities in preparation of an anticipated conversion to higher Btu gas. Mr. Horsfield, also a member of A.G.A., has presented several papers before the Operating Section. In his work, Mr. Horsfield will be assisted by Colburn R. Graves, system operator; Donald A. Cozzens, superintendent of Rockaway Park gas plant; and William T. Hanford, assistant superintendent of Bay Shore gas plant. All three men are A.G.A. members.

Manufacturers announce personnel changes

● **International Heater Company**—William A. Matheson, Jr., has been named sales promotion manager. His duties will include sales planning and direction for the International Heater organization. Mr. Matheson was previously employed by Williams Oil-O-Matic and the Perflex Corp., Milwaukee, Wisconsin.

● **A. O. Smith Corporation**—Alfred E. Treen has been appointed manager of personnel and purchasing at the Houston Works. He succeeds F. B. Dunn, who resigned recently. Mr. Treen will be responsible for all traffic activities, as well as the formation and administration of personnel policies.

● **A. V. Smith Engineering Company**—Hugh L. Hamilton has been named to manage

and direct activities from company headquarters in Bala-Cynwyd, Pa. Mr. Hamilton was previously responsible for corrosion control programs of Atlantic Refining Company subsidiaries including Keystone Pipe Line Co., and Buffalo Pipe Line Corporation.

● **Caloric Stove Corporation**—William E. Bambrick has been named divisional sales manager for Arkansas, Oklahoma, Mississippi and Louisiana. Mr. Bambrick has served Caloric since 1947 as a district representative.

● **Lancaster Meter Parts Company**—Ed Gilmore has been appointed chief engineer. Formerly associated with Rockwell Manufacturing Co., and Cities Service Gas Co., he is

Hornor and Reid elected

J ROBERT HORNOR, president, Delaware Gas Co. and Washington Gas Co., Clarksburg, W. Va., has been elected 1952 president of West Virginia Oil and Natural Gas Association. Mr. Hornor is a member of American Gas Association.

G. Allan Reid, president, South Penn Natural Gas Co., and vice-president, South Penn Oil Co., was chosen association vice-president.

well-known for his work in the positive displacement meter field. Mr. Gilmore is the inventor of the Gilmore gas stethoscope for locating leaks. He is a member of American Gas Association and Mid-West Gas Association.

● **Servel, Inc.**—R. J. Canniff, director of advertising, resigned on September 1. Mr. Canniff, a member of American Gas Association, has been very active in the Residential Gas Section. During the 1951 Association year, he has served as member of the Housing Committee, New Freedom Gas Kitchen Committee, Home Service Committee, Refrigeration Committee, and as consultant of the Domestic Gas Copy Committee.

Barbara Jacobs appointed

BARBARA JACOBS has been appointed home service director of the Harbor division, Southern Counties Gas Co., Los Angeles. She comes to this position with a B.S. degree in home economics from Iowa State College as well as with diversified experience in teaching and home service. Miss Jacobs succeeds Mrs. Laverne Jackson, who resigned recently.

Canadian Gas Journal given new look

THE CANADIAN GAS JOURNAL has been to the beauty parlor, and the results are good. The restyled cover features the photograph of a leading Canadian gas industry executive as well as a brief listing of important industry dates and developments.

Changes have been made between the covers, too. The editorial policy always has been one of service to the Canadian gas industry,

but the new *Journal* strives to do an even better job. Under its new policy, the magazine discusses every branch of the business, from salesmanship and advertising to gas manufacture and distribution. To reach the goal, Editor George W. Allen calls for utility and manufacturer support: more subscriptions, more advertising, more contributions of newsworthy practical articles.

New York State Electric and Gas elects Lyons

WILLIAM A. LYONS has been elected vice-president of New York State Electric and Gas Corp., Ithaca. In addition to his present executive assignments and direction of the company's public relations activities, Mr. Lyons has assumed responsibility for the company's residential and commercial sales



W. A. Lyons

activities.

Mr. Lyons came to Binghamton in 1944 as assistant to the president, after being identified with former affiliated utility companies in New York City since 1929. From 1929 to 1941 he served as accountant, assistant to the comptroller, and assistant to the president of Utility Management Corp., New York. In 1941 he became comptroller of New York, Pennsylvania and New Jersey Utilities Company, continuing in that capacity until 1944. During and after World War II, Mr. Lyons served in War Production Board, Civilian Production Administration and National Securities Resources Board.

McCarter award winner

AUSTIN J. FOOTE, a serviceman, Green Mountain Power Corp., Burlington, Vt., has been awarded the McCarter Medal and Certificate, for an outstanding act of life saving. McCarter awards are presented by the American Gas Association for successful application of the Schafer prone pressure method of resuscitation.

What to read and where to find it

● **Parents' Magazine Tenth Expandable Home** (*Parents' Magazine*, 52 Vanderbilt Ave., New York 17, N. Y.). In the September issue, this article is a powerful promotion of the modern all-gas home. Promotion and publicity tie-in kits available from *Parents'*. For information and material write Mrs. Maxine Livingston, family home editor.

● **Heating the Home** (University of Illinois Small Homes Council, Urbana). Home heating advances of the last six years are vividly described in this non-technical, 12-page circular. Authors are Professors S. Konzo, W. S. Harris and R. W. Roose, staff members of the university's engineering experiment staff. Free until November 1, then 10 cents a copy.



Moreton R. Thompson

retired vice-president of the Southern Counties Gas Co., Los Angeles, died at his home in Santa Monica on September 26 after a brief illness. Mr. Thompson, who was 74 years old, had served Southern Counties for 30 years when he retired in 1941.

He is survived by his widow, Mrs. Annabelle Thompson.

Network calculators

(Continued from page 19)

The operation of a network calculator obeys Ohm's law which is—

$$E_1 - E_2 = RI$$

where:

$$\begin{aligned} E_1 - E_2 &= \text{Difference in potential} \\ R &= \text{Resistance to flow} \\ I &= \text{Current flow} \end{aligned}$$

Because the formulae are not in the same form, it has been necessary to develop a relationship between them. This relationship having been established, the gas system may be duplicated electrically and the gas flow or pressure drop in any branch or proposed installation could be measured rather than calculated as is the present practice.

When using a network calculator, it is

necessary to determine the length and size of all mains under consideration, the estimated present or future maximum hour demands, the location of these demands, and the minimum pressure which will give satisfactory service to the customer. This same procedure is followed when making calculations in the conventional manner.

This information having been established, the gas system is duplicated with electrical components. Each branch of the network is represented by a resistance unit and gas flow is represented by current. When using linear resistors, the value of the resistance is adjusted in proportion to the product of the characteristic constant, K , and the flow, Q . Because the flow in each branch is unknown, successive approximations to this adjustment must be made. The demand on the system is represented by vacuum tubes which take current from the system. The pressure differential across the system is represented by a differ-

ence in potential. With the system duplicated in this manner, all electrical units are adjusted to conform to the gas system units which they represent. The pressure at any point in the system can then be measured or the flow in any branch investigated.

Electric network calculators have been applied to the solution of both low and high pressure systems using either the Spitzglass Low Pressure Formula, the Spitzglass High Pressure Formula, or the Weymouth Formula. The results indicate that the future application of these calculators will be widespread.

The advantage of using the instrument is speed in calculating, together with a greater accuracy in the results. When the gas distribution system has been duplicated with electrical components, the pressure at any point in the system can be measured. The resultant changes caused by the installation of a new main or the advent of a new load may be quickly determined.

Heart-Saver Kitchen

(Continued from page 9)

as the *Companion's* model layout, were not built to be copied faithfully. Their purpose is to show ways in which sound principles of arrangement and storage can be applied to save heart strain. The American Heart Association and American Gas Association encourage institutions and individuals to experiment. Many copies and variations of the first kitchen have now been made, but of the four or five full-scale models being shown, no two are alike.

The promotion of the kitchen is a humani-

tarian community health program. There remains a great deal to be accomplished and the gas industry's contribution continues to be most important to success. Cardiac housewives in many American communities are still unaware of the Heart-Saver Kitchen and are unable to participate in the work simplification program.

As knowledge spreads, other groups are showing keen enthusiasm for the idea. Cerebral palsy, tuberculosis, infantile paralysis, diabetes and a score of other chronic ailments require long periods of convalescence. Work simplification can greatly alleviate the dangers and inconveniences of these periods. Thus, the

crusade is a long one, but as each invalid is helped, the crusade becomes increasingly worthwhile.

Local gas companies, working with the heart association affiliates, are in an excellent position to promote the Heart of the Home program as well as to construct model kitchens. They can also assist in finding inexpensive solutions to work problems for individual cardiac homemakers. Although the job has just begun, the gas industry, led by A. G. A.'s Promotion and New Freedom Gas Kitchen Bureaus, deserves the gratitude of the millions of handicapped homemakers who have been and who will be benefited by this revolutionary idea.

GAMA installs new officers

NEW LEADERS of the Gas Appliance Manufacturers Association will take office at a special meeting of the board of directors, St. Louis, October 14. All were elected at GAMA's annual meeting in Chicago, last April.

Louis Ruthenburg, chairman of the board, Servel, Inc., will be installed as president, replacing Frederic O. Hess, president, Selas Corporation of America.

A. B. Ritzenthaler, vice-president, Tappan Stove Co., will move up to first vice-president and J. F. Donnelly, marketing director, A. O. Smith Corp., becomes second vice-president.

Lyle C. Harvey, president, Affiliated Gas Equipment, Inc., will retain his position as treasurer while H. Leigh Whitelaw will remain as managing director and secretary.

Chairmen of products divisions, who will also become members of GAMA's board of directors, and their vice-chairmen are:

Industrial Gas Equipment Division: D. A. Campbell, Eclipse Fuel Engineering Co., chairman; F. C. Schaefer, American Gas Furnace Co., vice-chairman.

Gas Incinerator Division: J. G. Dierkes, Bowser, Inc., and T. H. Landgraf, Autogas Company.

Direct Heating Equipment Division: F. Donald Hart, Temco, Inc., and T. D. Bromley, Peerless Manufacturing Co., Inc.

Gas Water Heater Division: J. P. Hutchinson, Lawson Manufacturing Co., and R. W. Simpson, John Wood Company.

Hotel, Restaurant and Commercial Gas Equipment Division: F. A. Kaiser, Detroit-Michigan Stove Co., and W. H. Smock, Vulcan-Hart Manufacturing Company.

Gas Clothes Dryer Division: R. B. Myer, Lovell Manufacturing Company.

Controls and Related Accessories Division: Paul F. Neess, Perfex Corp., and Frank H. Post, American Thermometer Div., Robertshaw-Fulton Controls Company.

Gas House Heating and Air Conditioning Equipment Division: Gordon Rieley, Lennox Furnace Co., Inc., and E. A. Norman, Jr., Norman Products Company.

Gas Refrigerator Division: Louis Ruthenburg, Servel, Inc.

Domestic Gas Range Division: E. Carl Sorby, George D. Roper Corp., and D. S. Sharp, the Tappan Stove Company.

Gas Valve Division: C. S. Stuckenholt, the W. J. Schoenberger Co., and D. E. DuPerow, Lincoln Brass Works, Inc.

New Group chairmen and vice-chairmen include:

Gas Furnace Group: Lee W. Rasch, Security Manufacturing Co., and George Hochstein, the Heil Company.

Vented Recessed Heater Group: J. R. Nason,

Williams Radiator Co., and Clarence Coleman, the Coleman Company.

Gas Air Conditioning Group: John K. Knighton, Servel, Inc., and J. N. Crawford, Bryant Heater Division, Affiliated Gas Equipment, Inc.

"CP" Manufacturers Group: Julius Klein, Caloric Stove Co., and F. A. Kaiser, Detroit-Michigan Stove Company.

Gas Conversion Burner Group: W. E. Davis, Roberts-Gordon Appliance Corp., and C. L. Hewitt, Jr., L. J. Mueller Furnace Company.

Gas Floor Furnace Group: Clarence Coleman, the Coleman Company, Inc., and C. F. Cushing, Payne Furnace Division, Affiliated Gas Equipment, Inc.

Gas Boiler Group: H. B. Carbon, Bastian-Morley Co., Inc., and L. N. Hunter, National Radiator Company.

Gas Meter and Regulator Division: William A. Raub, E. F. Griffiths Co., and K. R. D. Wolfe, Fisher Governor Company.

Capital

● A lot of people who spout so profusely about capital and labor never had any capital and never did any labor—*Gas Flame, Citizens Gas & Coke Utility*



Industrial relations round-table

Prepared by
A. G. A. Personnel Committee

Edited by Bernard H. Kinzer

● **Coffee recess keeps employees in building**—The Mutual Life Insurance Company of New York and Schrafft's Restaurants put their heads together to see what could be done about a problem that has bedeviled many office firms—the morning coffee. One week after Mutual had moved into its new home office building, the new experiment got under way. Schrafft's waitresses, towing mobile aluminum coffee carts, appeared in the building between 9:15 and 10:30 a.m. every workday. The carts were wheeled through the main working areas of each floor, where employees served themselves coffee or milk and pastry at standard prices.

The project was originally intended as a 90-day experiment, but it became so successful it is now a permanent fixture. Mutual Life believes that the morning coffee-at-your-desk routine is much more than a rescue service for employees who might have missed breakfast at home in the rush to get to the office. A survey the company made before moving uptown showed that some 800 people left the building daily for coffee or snacks. When that 800 is multiplied by the 15 minutes lost for each coffee interval, it is apparent that the new system has been responsible for a considerable saving in time. In addition, it contributes to friendliness toward management, relaxes office tensions, and helps Mutual Life people to work productively.

● **Training materials**—The American Society of Training Directors in its publication *The Journal of Industrial Training*, November, 1950, has issued a catalogue of training materials in their library. This library is operated in conjunction with the Purdue University Libraries at Lafayette, Indiana. The listings occupy 18 pages and are divided under eight headings such as apprentice training, program development and administration.

● **Utilities do right by fourth estates**—*Public Utilities Fortnightly* recently ran an article based on a survey of public utility attitudes toward the members of the fourth estate. David Markstein, the author, reports a great change in the attitudes of utilities toward the press since the early thirties, when most utilities exhibited the greatest distrust and lack of cooperation toward newsmen. Today, most companies maintain publicity or press relations officers, or delegate exclusive authority for handling interviews and press releases to one of their higher echelons.

All the companies said they welcome newsmen at all times and would answer even the most touchy questions "with complete frankness." Twenty-five of the companies reported that they promote favorable stories by calling up editors and offering them story angles, and

some of the companies said they give periodic press conferences or press parties to keep their names before the public in a favorable light.

On the whole, Mr. Markstein feels that public utilities are ahead of industry in general in the area of press relations; a reputation they should seek diligently to uphold.

● **Getting acquainted with your company's operations**—Columbia Gas System is developing a general education course for employees entitled "Getting Acquainted With Your Company's Operations." The complete course will consist of the following twenty-two subjects each developed and printed in separate booklets:

Geology—Origin—Reservoir, Prospecting Temperature and Leases. Also included are Drilling (Std.), Drilling (Rotary), Casing and Cementing and Capacity of Wells. Other subjects are Estimation of Reserves, Pressure, Laws of Gases, Measurement and Measurement of Large Volume.

Additional booklets are devoted to Production, Cleaning—Preparing Gas for Pipe Line, Transportation, Storage and Distribution. The final groups include Regulators or Governors, Corrosion, Combustion and Domestic Gas.

These subjects were written by Prof. C. M. Young of The University of Kansas. After the completion of his editing, copies were submitted to the group department heads responsible for the work covered in the subjects with the request that they correct the subject so that it would apply to the operations of the system.

To date five of the subjects have been printed and copyrighted. Contact David R. Edwards, vice-president, Columbia Gas System Service Corp., 120 East 41 St., New York 17, New York, for a sample booklet on a subject of special interest to you.

● **Foot care program increases efficiency**—American industry could halve the bill it pays each year for accidents, industrial fatigue, and absenteeism resulting from foot ailments, according to a report on a three-month industrial foot care program just completed at the Garwood, N. J. plant of Metal Syndicate, Inc.

Anticipating an increased strain on its plant facilities because of defense orders, the firm set up a clinical program designed to cut its production and manpower losses arising from foot disorders. The examinations and necessary treatment were given on the premises, in an already existing first-aid clinic.

A preliminary survey of the program shows that industrial fatigue was reduced by 40 percent and absenteeism dropped 22 percent. The factory superintendent estimated that the boost in morale and efficiency raised output per worker by more than 15 percent. It is anticipated that continuance of the foot care program as a permanent project will cut production losses even further.

It was discovered that the major cause of

foot ailments, and resulting fatigue, was ill-fitting or unsuitable shoes and industrial accidents. Contrary to popular belief, it was found, for example that rubber-soled shoes were more slippery than leather soles on wet or oily surfaces.

The three-month foot hygiene project of Metal Syndicate corroborated earlier studies which had disclosed that aching feet frequently set up a chain reaction of other complaints such as leg and back pains, headaches, and posture defects.

● **New seniority plan cuts layoff grievances**—Ford Motor Company and United Auto Workers (CIO) have worked out a solution to one of conversion's nastier problems: How should the company or union handle grievances that come up when employees are laid off at one plant, while new workers are being hired at another?

At the start, Ford and UAW agreed to cut down on the number of grievances by a new seniority plan covering some 80,000 employees in five Ford plants in the Detroit area.

Under it, workers laid off in one plant due to curtailed production must be referred to other company plants which are hiring new workers. These men must be put on the payroll before any outside workers can be hired.

Employees who shift from one plant to another during a layoff will retain their seniority in their original plant. Moreover, the time in the second plant will add to: (1) the worker's pre-layoff seniority in the old plant; (2) his vacation and other benefits, which may vary according to length of service under the Ford-UAW area-wide contract.

The agreement also gives Rouge employees first claim on new jobs in other departments whenever they are laid off in a work curtailment in their own department.

● **Merit rating**—For those who may have wondered how a joint union-management merit rating program might work out in industry will find some of the answers in a new case study report by Rutgers University. The report, "The Joint Employee Rating Plan of the P. J. Ritter Co. and Local 56, Meat and Cannery Workers Union, AFL," was written by J. P. Pearce, Jr. and D. N. Dertouzos of the Institute of Management and Labor Relations and copies of the 52-page report may be purchased for \$1.00 each by writing to the University in New Brunswick, New Jersey.

The joint rating program provides for a work performance review of the regular production employees by foremen and shop stewards. The report points out that while the ratings are not a panacea they do help in individual evaluation and comparison. One of the conclusions arrived at was that there was an improvement in the relationships as a result of the regular meetings of the foremen and stewards to discuss and resolve workers' problems.

Exploration

(Continued from page 11)

high probability of getting a dry hole, he faces the unpredictable turn of the oil market. As a matter of fact, the success of discovery, if large enough, may in itself bring about a lower price of oil. When Mr. Joiner had spent his last cent and the last dollar he could borrow to discover oil in East Texas, his discovery brought on new production of a million barrels per day which the market could not take and the price soon dropped to 18 cents per barrel, for those who could find a buyer. Since World War I the price of 36 gravity Mid-Continent crude, as representative, has ranged from \$3.50 per barrel in 1920 to 18 cents in 1931, and is now \$2.57. The oil producing business has been through many feasts and famines. The oil producer always faces severe competition. If potential output exceeds demand, the price may fall or his production may be prorated, or both. As a producer of fuel he must compete with coal and even with the product of the sister industry, natural gas.

The finding of oil and natural gas has been accomplished by pioneers, by operators willing to take chances in the hope of high returns, and in a political atmosphere where they were not afraid of confiscation if they struck oil. The Russians, with larger territory and larger potential reserves, have not done so well.

Attempts to regulate

Congress passed the Natural Gas Act in 1938 regulating interstate gas transmission companies, but specifically exempting "the production and gathering of natural gas." There has naturally arisen cases of overlapping of regulatory jurisdiction at the border line where gas passes from producing properties into interstate transmission lines. The state conservation commissions had long since regulated the production of oil and gas particularly as to maintaining conservation and protecting the correlative rights of neighboring producers.

To clarify the limits of Federal jurisdiction, the Rizley-Moore Bills were brought before Congress in 1947, followed by the Kerr Bill introduced in 1949. These bills were designed to remove any doubt as to the meaning of the Natural Gas Act by definitely excluding jurisdiction of the Federal Power Commission over the producing and gathering of natural gas by producers other than transmission companies. The Kerr Bill was passed by the Congress in 1950 but vetoed. Thereafter, the Federal Power Commission brought an action against Phillips Petroleum Company to ascertain whether the Commission has jurisdiction over the production of its natural gas. On July 18, last, the Commission found in a 4-to-1 decision that it did not have such jurisdiction. If sustained, the decision will have a far-reaching effect in encouraging the search for the future supply of natural gas, so important in the long-term soundness of the gas utility industry.

I cite this because of the opposition that developed against the Kerr Bill by consumers far removed from the scene of natural gas producing operations with little insight into the problems of the wildcatter. The business of

producing and maintaining production is entirely different from that of distributing gas. One thrives or fails on the taking of risks and is highly competitive. The other, being franchised and protected against competition in its territory, enjoys a status of permanency paralleling the continuance of the population and industry served.

The oil and gas producer must be compensated for his risks or he will not go further to find the next field. The average total cost of a wildcat in this country now approximates \$90,000. Would you invest \$90,000 in a wildcat venture with one chance in nine of getting your money back and one chance in forty-four of making a good thing of it if you were going to be regulated down to six percent return on your cost if you struck oil? That is what the shooting was about—that and the possibility that the oil companies might later be regulated on their other operations if the Power Commission once started on their gas production.

The successful oil companies, of course, earn a rate of return in excess of six percent, especially in good times. For a group of 30 of the larger oil companies, the composite rate of return on borrowed and invested capital has been as follows:³

Period	Rate of Return
1934-36	5.3%
1937-39	6.7%
1940-42	6.7%
1943-45	8.1%
1946-49	13.4%
1950	12.7%

The rate of return on strictly producing companies is higher. But these are the successful companies. No one reports the losses of the companies and hundreds of independent operators who fail. Herbert Hoover says, regarding the rewards for the search for gold:⁴

"If all costs are included, gold mining is an unprofitable business in any country. It is certainly no business for amateurs. But the lure of the occasional great strike maintains a steady stream of followers for this variety of Pied Piper."

Mr. Hoover's statement may be applied in some degree to the search for oil. The profits of the large oil companies and the successful discoveries by independents are colorfully overemphasized by the public. But no one hears much about the failures in business and the enormous amounts spent by unsuccessful wildcaters and the promoters using other people's money in the attempt to get rich out of oil. Counting everything, it is questionable whether the over-all results of exploring for oil and gas make it a profitable business. In any case, it is a pursuit fraught with many hazards, it is no game for amateurs, and it warrants the hope of high reward to the successful. And it takes the prospect of real profit to induce the oil and natural gas finders of this country to carry on, in exploring for new supplies needed to keep the gas coming.

Gas purchased along the Gulf Coast for seven and one-half cents per Mcf is now being hauled an average distance of 1600 miles for delivery in the New York City area at about 29 cents. The gas transmission companies face

higher expenses including the 9/20 of one cent per Mcf gathering tax just enacted in Texas which must be paid by the pipeline companies. To yield a six percent return the cost of transporting through large lines at high load factors approximates 1.4 cents per Mcf per 100 miles, and like other costs the trend is upward. The New York utility buying Texas gas gets the gas but it pays for gas plus transportation—about one-quarter for the gas and three-quarters for transportation. And at present competitive prices in the New York City area for oil, coal and natural gas, the advantage on a strictly Btu basis is 5 to 10 cents per Mcf in favor of natural gas. That is what creates the prevailing heavy demand for natural gas in the Northeast and in turn the competitive demand for new gas supplies in Texas and Louisiana.

In obtaining their requirements of natural gas up to the present time, the utilities for the northeastern states have been in competition for their supplies with other sections of the country, particularly the Pennsylvania-Ohio industrial areas and the north central states. But there is another demand for Texas gas which will compete more and more with New York—that is the use of Gulf Coast gas at locations near the producing fields for industrial fuel and as the raw material for the manufacture of many new chemical products. These southern industries and uses are increasing rapidly. If gas is worth around 30 cents per Mcf in the New York City area after 22 cents for transportation, it will ultimately be worth much more than 10 cents if utilized near the source, where little transportation is involved. And there is plenty of political agitation in Louisiana and Texas to keep natural gas from being exported to the north for the benefit of the damned yankees who have plenty of coal anyway—but to retain their gas for the use of industry that may be induced to move to Louisiana and Texas and help those states grow.

The gas utilities in the New York-New England area should be able to obtain a sufficient supply of natural gas for many years provided the natural gas producing industry is encouraged to go out and find more reserves yet to be discovered. Customers should recognize the service rendered them by the natural gas finders and producers in far-away fields and the risks they must take in exploring for new supplies. Their costs are mounting, they have a big job ahead and they are entitled to a price sufficient to induce them to explore. No inducement—no exploration—and without further exploration the supply position would fall off rapidly. I would suggest that from the standpoint of the utilities and their customers the basic objective should be to see that the gas keeps coming.

FPC okays additions

FEDERAL POWER COMMISSION has authorized East Tennessee Natural Gas Co., Knoxville, to deliver an additional 16,900,000 cubic feet of natural gas daily to the Atomic Energy Commission's Oak Ridge plant. The company was authorized to construct pipeline facilities to serve three towns in Tennessee.

FPC also authorized three subsidiaries of The Columbia Gas System, Inc., to construct new natural gas transmission facilities in Ohio, Kentucky and West Virginia.

Accident prevention

(Continued from page 15)

our foremen to four rather commonly used methods of presenting our safety message, i.e., lectures, distribution of safety publications, safety posters for bulletin boards, and the insertion of safety messages in employee publications. Over 90 percent of the answers indicated that each of these methods was effective in helping employees to do a job safely. Less than 10 percent indicated that any of the methods mentioned were ineffective. The method that was most highly endorsed was the safety lecture. It is enlightening to find this very high degree of acceptance of simple, straightforward, educational techniques.

With the high degree of endorsement which we received for safety lectures, we were also interested to note how many safety lectures per year were believed necessary to carry out an adequate safety instruction program. Perhaps it is a coincidence that over 72 percent of the replies indicated that our present arrangement of two lectures was adequate. The next highest number mentioned was four lectures, suggested by about 12 percent of the group. It is also interesting to note that over 93 percent of the respondents believed that discontinuance of safety lectures would actually result in an increase in our accident rate.

Of course, with such preponderant approval of our general staff safety activities, you would anticipate a similar reaction to the manner in which the safety program is being carried out within departments. This proved to be the case, for 87 percent of the people felt that their supervisors were completely supporting their efforts to secure safe working conditions in their group. Eleven percent thought they were receiving partial support, and two percent thought the supervisory support was indifferent and no one felt that he was without support.

Another indication along the same line was shown in the replies relating to the attitude shown by superiors when a safety suggestion was submitted to them. Here again, some 90 percent reported a genuine interest on the part of superiors, nine percent indicated some interest, and only about one percent reported no supervisory interest at all. A further indication of positive, affirmative attitudes on the part of supervisors toward safety is found in the replies to the question: "To what extent do the job instructions you receive take safety into consideration?" Eighty-two percent of the replies stated "fully" and another 17 percent stated "partially."

With this high degree of safety consciousness intra-departmentally, you would naturally expect to find that a similar concern for

safety would be demonstrated in the relations between departments—even though each department is competing to establish the best safety record for itself. The replies to the question: "What difficulty do you find in getting the necessary cooperation from other departments in providing safe working conditions?" were most revealing. Forty-four percent indicated "no difficulty," another 52 percent "only little difficulty," and only 4 percent felt there was considerable difficulty in this area.

Getting down to some of the techniques and mechanics of a safety program on the job, such as safety rules, good housekeeping, safety appliances and equipment, it is gratifying to observe the extent to which these things have impressed themselves upon the safety consciousness of our people. For instance, in the matter of rule books, issued to employees as a safety guide: sixty-eight percent of the replies from foremen showed these rule books to be satisfactory, 30 percent partially satisfactory, and less than two percent thought them unsatisfactory; but 90 percent of the replies actually suggested improvements for placing safety rules in the hands of employees. Here was another instance in which the replies from our accident cases gave us a bit of a pleasant surprise: eighty-five percent of this group indicated that the rule book they received was satisfactory and the other fifteen percent believed it was partially satisfactory.

I was most anxious to see what the reaction of our own people was to the effect that safety rules have on the work of our foremen and the work of the men under their supervision. Only 22 percent of the foremen felt that their jobs had been made more difficult by the imposition of safety rules and requirements for use of safety appliances, while 56 percent believed that the job was made less difficult, and 22 percent thought there was no recognizable effect one way or the other. Yet another enlightening reply greeted us from our accident cases in the related question: "What effect do safety rules have on your work?" Over 86 percent said the work was made less difficult, with about 10 percent indicating no effect and less than four percent lining up for the "more difficult" choice!

With respect to the speed with which work was done, just about one-third of the respondents in each category felt that the work was slowed up by safety regulations. This reaction seems somewhat paradoxical until we realize that the answers to questions of this type are only relative. As I have already pointed out, this group is safety minded and the safety program has a very high degree of acceptance. The men were making their replies, not in terms of the possible saving of a couple of minutes on the immediate job, but rather in terms of the great losses of time and effort that occur in those accidents resulting from the failure to observe safety rules.

The necessity for "good housekeeping" is something that is more or less taken as a matter of course, but I never would have been inclined to say that 95 percent of our foremen believed that good housekeeping is effective in accident prevention. But, that is actually the way they replied.

In those situations where safety appliances and equipment are supplied, I was happy to note that 96 percent of our foremen felt that

adequate quantities were being supplied and that their effectiveness was regarded as "excellent" by 40 percent and "good" by another 58 percent of those replying. Again comparing the replies to this question from our "accidentees," we found that these employees vote unanimously that the protective devices supplied to them are adequate as to quantity, and 65 percent believe the effectiveness of such devices to be "excellent," 29 percent "good" and 6 percent "fair."

Ninety-seven percent of the foremen stated that they had complete confidence in the safety appliances and equipment that are supplied for the use of their men, and the other group matched this with a 97 percent vote of complete confidence. The foremen also stated that the men, themselves, were quite willing to use safety equipment. Less than two percent indicated that the men in their groups believed safety equipment unnecessary, while 28 percent believed the men wanted to use them, and another 61 percent stated that their men used them without complaints or gripes. You will be interested, I know, in the corresponding replies from the other group we sampled. Thirty-five percent of these employees stated they wanted to use safety appliances and 60 percent used them without complaint. Five percent of this group "disliked to use" safety equipment, but none believed it unnecessary.

Under these conditions, I was not at all surprised that some 60 percent of our foremen believed that unsafe working conditions have been only partially eliminated in their work locations. With such a critical attitude, we can look forward to having safety of operation the subject of continuous attention by our supervisors. The supervisors, themselves, however, have some strong opinions as to what contributes the most in maintaining low accident rates. Only 10 percent of them thought that the quality of equipment and tools was responsible. Another 45 percent were friends of the safety people and gave the credit to the safety program but just as many felt that in the final analysis, the answer is found in the thinking and attitude of each individual employee.

Comparison of the replies from our accident cases in this instance is interesting, even though not too sharply divergent: Twelve percent stood on the "quality of equipment and tools"; thirty-three percent lined up with the safety boys, and 55 percent believed that their own thinking was the largest factor.

From these answers you can see the tremendous human relations problem that exists in the safety activity. Just about 90 percent of all the respondents believed that the safe job has to be done by and through people, and not equipment and tools alone.

Another interesting finding of this survey was that although 84 percent of these replying believed that our safety program decreased our costs of operation and 91 percent thought that it increased our efficiency, they didn't think that these factors represented the primary purpose of our safety program. Eighty-two percent of the foremen and 81 percent of the others believe that we are more concerned about the human values involved and stated that in their opinion the primary purpose of our safety program was to eliminate personal injuries. They really believed this because we put up to them the proposition that much of

STATISTICS

● We Americans tend to place too much faith in figures. You recall the sad story of the man who drowned crossing a stream that averaged only two feet deep!

—Henry J. Taylor, economist

our safety program is also applicable to "off the job" activities. We asked them: "How effective is our safety program on your 'safety consciousness' at home." Eighty percent felt it to be quite effective, while only one percent believed it to be ineffective.

Now despite a very effective safety program which is well accepted by the employees, we do have occasional accidents. These are carefully investigated and reviewed in order that everything possible may be done to prevent the recurrence. Our investigation and review procedure includes a report on the accident by the foreman, an investigation either by a departmental safety committee or our staff safety people, or both, and then a determination by these groups as to the cause and responsibility. The significant thing about our procedure is that we do not have any participation by the injured employee either directly or through any representative other than the foreman. Under such circumstances it might properly be thought that findings would be made preponderantly in favor of the company.

Therefore, it was interesting to find out that over 90 percent of all respondents felt that our present method of investigating accidents was satisfactory and did not suffer from either insufficient checking or too much detailed checking. With a satisfactory investigation procedure, it is still possible for people to believe the employees involved do not get a fair break. Eighty-seven percent of the replies indicated that in the experience of the individual replying, the determinations as to cause and responsibility have been generally fair, and in only two percent of the replies was there any feeling as to unfairness in the determinations.

Our employees certainly have their feet on the ground insofar as safety activities are concerned, when we consider the foremen's replies to the question: What in your opinion contributes most to the success of a safety program? Twenty percent thought an adequate safety program was the answer, another 23 percent put it in the laps of the supervisors by calling for constant supervision, but the remaining 57 percent felt that the answer was individual cooperation. And to back this up, over 77 percent of the accident cases queried stood up on the side of individual cooperation! That answer demonstrates the effectiveness of the safety program; it goes even further, it seems to me, in proving that the human value approach to accident prevention is recognized and accepted by our people.

Individual cooperation, implying as it does, the working together of individuals with their supervisors under an adequate safety program, will bring us much nearer to our goal of an accident-free industry, with all the related human benefits of freedom from suffering, elimination of family anguish, and increase in individual productivity.

Pipeline flow

(Continued from page 17)

they could be used either in a vertical or an inclined position. In the inclined position, the full range of each manometer was approximately 250 inches of water differential.

Each of the 100 divisions of the potenti-

ometer charts corresponded either to 0.1 centimeter of mercury or 0.1 inch of water differential, depending upon whether the manometers were vertical or in the inclined position. A set of switches permitted measurement of differentials of any magnitude, up to the full manometer length, to this degree of precision.

Successful operation of the electrical manometers requires absolutely clean contact between the mercury and the platinum-iridium wire. In these tests a great deal of difficulty was experienced in getting and keeping mercury clean enough for the purpose. The gas supplied from Pacific Lighting's plant is odorized, and it was found that the sulfur in the odorant made a black scum on the mercury surface in an extremely short time. This scum resulted in a very uncertain contact between the wire and the mercury and, until overcome, prevented a precise determination of the mercury levels.

Various remedial measures were suggested by chemists and others, and considerable time was spent in constructing, installing, and testing equipment for the removal of the sulfur from the gas in the gauge lines to the manometers. When it became obvious that very small amounts of sulfur in the gas fouled the mercury, it was decided to use nitrogen as a buffer between the gas in the pipelines and

the mercury in the manometers. The manometers and gauge lines were filled with nitrogen from standard compressed gas cylinders to a pressure equal to that in the pipeline. The operation had to be repeated every time the pipeline or the manometers were depressured and required considerable skill in manipulation of the gage valves.

Despite the use of nitrogen in this way, some difficulties continued to be experienced, apparently because of sulfur compounds on the walls of the gage lines and because of foreign matter either in the supposedly clean mercury or lodged in the small recesses between the bottom of the manometer tubes and the stainless steel blocks into which they are welded. However, it was found that increasingly long periods of satisfactory operation were possible between cleaning operations. The need of cleaning was evidenced by failure of the manometers to duplicate preceding calibration readings. Very frequent calibration checks were made.

Special acknowledgment is due Pacific Lighting Gas Supply Co. and its operating personnel for their valuable assistance in all phases of the work at Goleta; to the Daniel Orifice Fitting Co., who loaned an orifice fitting and a complete set of orifice plates; and to the Moorlane Co., which loaned the meter run.

Statement of the Ownership, Management, Circulation, Etc., Required By the Act of Congress of August 24, 1912, as Amended by the Acts of March 3, 1933, and July 2, 1946

Of American Gas Association Monthly published monthly, except for July and August. Bi-monthly then; at Brattleboro, Vermont for October 1, 1951.

State of New York, County of New York, ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Laurence C. Messick, who, having been duly sworn according to law, deposes and says that he is the Editor of the American Gas Association Monthly and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily, weekly, semi-weekly or tri-weekly newspaper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the act of August 24, 1912, as amended by the acts of March 3, 1933, and July 2, 1946 (section 537, Postal Laws and Regulations), printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Gas Association, Inc., 420 Lexington Ave., New York 17, N. Y.; Editor Laurence C. Messick, 420 Lexington Ave., New York 17, N. Y.; Managing Editor, None; Business Manager, None.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.)

American Gas Association, Inc., 420 Lexington Avenue, New York 17, N. Y.; President, George F. Mitchell; 1st Vice-President, Charles E. Bennett; 2nd Vice-President, Earl H. Eacker; Treasurer, Edward F. Barrett; Managing Director, H. Carl Wolf; Secretary, Kurwin R. Boyes (all of 420 Lexington Avenue, New York 17, N. Y.).

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is (This information is required from daily, weekly, semi-weekly, and tri-weekly newspapers only.)

LAURENCE C. MESSICK, Editor.

Sworn to and subscribed before me this 11th day of September, 1951.

(Seal)

LAWRENCE P. BROWN
NOTARY PUBLIC, STATE OF NEW YORK
Residing in Queens County
State No. 41-0453000
Qualified in Queens County & N. Y. County
Commission Expires March 30, 1953

Competitive ratio

(Continued from page 12)

advertising and on sales floors. Even more important, most dealers are now on a "take your choice—we handle both types" basis. The burden of fuel promotion is now clearly our own.

Thus we observe growth of the industry on the one hand, while at the same time we are capturing a lesser and lesser portion of the available market. Can we do anything about it? De we need to?

For one, I believe we can do something about it and that we should.

(1) We can support GAMA and A. G. A. and their Pacific Coast Gas Association counterparts.

(2) We can continue support of PAR plan of A. G. A. PAR has proved to be an effective way to coordinate the efforts of manufacturers and utilities. It has produced a promotional program that has been envied by the electric industry. It has stimulated national advertising to the point that the gap between electric and gas appliance space has been importantly narrowed. It has produced long needed research activities. And as a by-product of these things it has enhanced the stature of the gas industry in investor circles—a worthy objective in itself.

We can recognize that the ratio of gas appliance advertising to electric appliance advertising needs to be further improved. As I see it gas utilities must support national advertising, and both manufacturers and utilities should continue their own advertising.

(3) Utilities can help by providing gas service which will permit gas appliances to function at their best. It seems clear to me also that utilities need to offer a reasonable adjustment service in the customers' homes in order to assure continuing satisfaction in the use of gas.

(4) We in the utility field are the ones who should assume a great share of responsibility for promotion of appliances by some two-fisted means to stimulate demand and assist in making the sale of gas appliances profitable to retailers.

Gas heating rose

The sale of gas heating appliances has skyrocketed since the era of John L. Lewis' fuel economics. In 1940 sales of major gas heating equipment amounted to 340,000 units. But in 1950 sales were 1,615,000 units, exclusive of small heaters. In 1940 the number of individual residences and apartments heated by gas was 3,938,000. By 1950 the number was

11,795,000, almost exactly three times as great.

This has been wonderful business, but like an exclusive diet of very rich food, it brings its equivalent of gout and indigestion.

The demand of the public for gas heating is tremendous even in areas where a few years ago our industry was campaigning to gain greater public acceptance. Public acceptance has arrived with a vengeance, whether we like it or not. It is not unexpected that peak demands occasioned by the heating load cannot be met in some cases and that gas heating has had to be rationed out to new customers.

During war years when pipe for large lines was not to be had, the public could understand rationing. They may still be somewhat tolerant because of new shortages of steel arising from the present rearmament program. I share the view, however, that our industry will suffer in the long run from very poor public reaction if that situation is allowed to continue for long.

We may decry the peaks imposed by the heating load, and worry about the large amounts of new capital required. It is easy, and in some cases necessary, to take refuge in restricting the number of new heating customers to be added annually. Obviously, restrictions must be resorted to if they are the only means of preventing service failures. In the longer view, however, it seems to me we would do better to accept the responsibility for serving the load rather than to consider that we have no obligation to serve such large unforeseen demands.

Our ultimate remedy, perhaps even our immediate problem, is to obtain rates which are adequate to cover the costs of the peaking service which is characteristic of the heating business.

Looking at the brighter side, here is the public insisting on having our gas service—for heating, which puts gas service in the home. Other uses of gas follow then more readily than if gas heating were not available. And, of course, because of the poor load factor so typical of heating, the promotion of other gas uses is more necessary than ever before.

The situation I have outlined so sketchily has been a very real problem to the gas utilities in California for years. In fact the peak day in California required about 2.45 billion cubic feet this past winter.

I must admit, however, that so far in

California we have not faced up to the necessity of establishing rates for heating service which compensate for costs arising from the heating load. As increased rates have become necessary, we continue to penalize the non-heating uses of gas by raising the existing rate schedules more or less uniformly.

And speaking of rates, let me point out what is happening as we add new customers under current conditions. The increase of California population has brought the number of customers from 1,690,000 in 1940, 2,110,000 in 1946, and finally to 2,800,000 in 1950. Total plant investment, which was \$315 million in 1940, grew to \$386 million in 1946, and \$635 million in 1950. That is to say, number of customers increased 32.7 percent from 1946 to 1950, but dollars invested went up 64.5 percent. The new dollars paid for only half as many customers as the dollars invested in 1946.

Over 60 percent of the dollars now invested have gone to buy property at inflated prices. The outlook presumably is for continued expansion. If so, the prospect is that properties of California utilities before many years will be composed preponderately of high unit cost facilities. The investment required to serve a new customer is large compared with that needed a few years ago. Existing rate schedules do not provide revenues adequate to meet the costs of such investments, hence increases in rates must continue to be sought so long as this aspect of inflation continues to affect us in this manner. That is to say, the addition of new customers serves only to dilute the current earning capacity of a company.

Nothing has served to emphasize to my mind the whole matter of diluted earnings so much as an incident of which I heard not long ago. A holding company with several operating companies was having some trouble raising funds for expansion needs of the companies. They sold one company, and before long a second one. That solved their problem of getting funds but brought about a wholly unexpected result. When the money was invested in the expansion of the remaining companies, their combined earnings began to fall off. Why? For the simple reason that the dollars they got from selling their two companies did not buy as many miles of pipe, as many meters and regulators, and so on as those dollars had bought years before when they went into the original companies. Though a mile of main may cost two or three times as

much as formerly, it does not do any more work.

While I do not want to appear to over-emphasize the importance of the financing problem, I think it is one we can easily take too lightly. The very size of the funds necessary for the electric and gas industries to raise is an important item to consider. In California in 1940, I believe, the capital requirements of these two industries was perhaps under \$40 million. In 1950 it must have been approximately \$250 million. Obviously such amounts cannot be raised in local markets, but must instead be sought nationally. And our securities necessarily must compete with securities of other industries and they must stand comparison with offerings of other utilities of comparable risk anywhere in the country.

Make it clear

(Continued from page 22)

income statement.

Fixed charges, other than interest, may be buried with miscellaneous expenses. Because of all these differences, I doubt if a layman could reconcile the two income statements and I wonder if he even knows the two statements are reporting the same results.

If the supplemental statement is considered desirable, then possibly we could discontinue the formal statement and have the public accountants certify what we now call the supplemental statement.

There seems to be an unwritten rule that in our annual reports we must group together the auditor's certificate, the balance sheet, and the income and surplus statements. Certainly it is convenient for the accountants, the analysts, and the informed person to have the reports set up in this manner and this group undoubtedly favors the use of the technical type of statements. But this group represents a minority and we might question if this method best serves the interest of the majority group of stockholders. We need not be bound by tradition. If we think the majority of our stockholders desire to see the income statement at the beginning of the report, why not put it there? The same thing holds true for the balance sheet and the surplus statement. Why not show them where they will best serve the interest of the majority of our stockholders?

The annual reports of today are far superior as a stockholder's document to the reports of a few years ago. But there is considerable work yet to be done in presenting the financial figures. However, changes should be carefully considered and where possible, should be uniform for the industry.

Obviously, our financial statements will never be entirely uniform. There will be special items which require special treatment and there will be conditions which require modification of standard terms. In addition, we all desire to give individuality to our statements. Certainly there should be no objection to this as long as it stops short of the point where

it may create confusion.

When you look over the subcommittee's report and observe the differences in the terminology used, you will find that for the most part the differences are minor. You might well ask: "Since the differences are minor, what harm is done in using different terminology?" You could answer this with another question: "Since the differences are minor, why should there be differences?" Certainly the more we standardize our terminology, the easier the layman may be educated as to the meaning of the terminology we use.

The electric and gas utility companies are in a unique position compared with other industries. I do not believe that any other industry, comparable in size to ours, has such a well organized accounting association. Our associations offer us the medium through which we may solve some, if not all, of our problems with respect to financial reporting.

Safety measures

(Continued from page 4)

The enemy he defined as comprised of Russia and the two million registered communists throughout the world. Of this number about 400,000 communists and fellow-travelers live in the United States. A large number of these have been sent back to the Soviet Union to attend sabotage schools.

You cannot fight an enemy you do not know, the speaker declared. More than 85 percent of the communists work in secret. Also, he declared, you cannot fight an organized enemy unless you, too, are organized. He spoke of the three sections in this country under which communists are organized: the espionage apparatus under direction of a representative of Soviet military intelligence; the underground carrying on illegal activities, and the above ground section made up of open officials and communist party members.

He recommended formation of Anti-Communist Information-Action Committees in communities and companies. The United States Chamber of Commerce has published a guide for planning and operating such committees. Selling the American way of living is another way of combatting communist influence, he declared. Employers can do this through basic policies on education, orientation, leadership and motivation.

Mr. Costanzo briefly discussed the atomic bomb and its capabilities and limitations. He described types of atomic bomb bursts and their effects. In the interests of national security many facts have been withheld about atomic warfare and for this reason the National Civilian Defense Administration was organized. Our nation is far behind other European nations in this field, he said. Companies should realize that any disaster control plan they have should be part and parcel of the civil defense plan.

James H. Carnahan, director of safety services, Chicago chapter, American Red Cross, told the delegates of the experimental work in the field of resuscitation recently completed by Drs. Andrew Ivy and Archer Gordon at the University of Illinois, which offered some new viewpoints of life-saving. He also compared the results achieved by three methods of resuscitation which are being considered.



1951

OCTOBER

- 8-9 •Texas Mid-Continent Oil & Gas Association, annual meeting, Beaumont, Texas.
- 8-12 •39th National Safety Congress & Exposition of National Safety Council, Chicago, Ill.
- 9-12 •American Dietetic Convention and Show, Cleveland auditorium, Cleveland, Ohio (A.G.A. will exhibit).
- 15-17 •A. G. A. annual convention, St. Louis, Mo.
- 15-19 •National Metal Congress and Exposition, Detroit, Mich. (A. G. A. will exhibit).
- 18 •Institute of Gas Technology, annual meeting, Chicago, Ill.
- 22-24 •American Standards Association, annual meeting, Waldorf Astoria Hotel, New York, N. Y.

NOVEMBER

- 5-8 •American Petroleum Institute, annual meeting, Stevens Hotel, Chicago, Ill.
- 5-9 •National Hotel Exposition, Grand Central Palace, New York, N. Y. (A. G. A. will exhibit).
- 8-9 •Mid-Southeastern Gas Association, The Sir Walter Hotel, Raleigh, N. C.
- 15-17 •New Jersey Utilities Association, annual meeting, Seaview Country Club, Absecon, N. J.
- 25-30 •American Society of Mechanical Engineers, Chalfonte-Haddon Hall, Atlantic City, N. J.

DECEMBER

- 5-6 •National Warm Air Heating and Air Conditioning Association, annual meeting, Cincinnati, Ohio.

1952

JANUARY

- 21-23 •A. G. A. Home Service Workshop, Drake Hotel, Chicago, Ill.

MARCH

- Week of March 10 •National Association of Corrosion Engineers, Galveston, Texas.
- 27-28 •Oklahoma Utilities Association, Biltmore Hotel, Oklahoma City, Okla.
- 27-28 •New England Gas Association, annual convention, Hotel Statler, Boston, Mass.
- 31-April 2 •Mid-West Gas Association, annual meeting, Hotel Raddison, Minneapolis, Minn.

Personnel service

SERVICES OFFERED

Process and Production Engineer—Eleven years' experience in manufacture of coal gas, blue water and carburetted water gas, oil gas and by-products: coke, tar, benzole. Positions held: control and superintending of production and all operations, plant maintenance, development and research engineering. Chem. Engr. Married. (40). 1677.

Manager of natural gas utility 8000-10,000 meters. Fifteen years' experience in gas company management. Presently employed by large utility service organization. Married. (38) 1678.

Manager or General Superintendent, 25 years' experience plant and distribution operation and maintenance. A few of these years spent as Manager. Would also consider Assistant Manager of fairly large property. Resume of experience on request. Interviews can be arranged. Available on thirty days notice. Eastern or Middle West location preferred. 1679.

General Manager or Assistant General Manager. Graduate Engineer with twenty-five years' experience in plant, transmission, and distribution lines construction; materials and supplies handling; all types of gas; unaccounted for surveys; public and customer relations; employee and supervisory training; heavy administrative responsibilities. Have been General Superintendent (14,000 meters) and responsible for industrial, house heating and commercial sales. Presently Manager of Gas Operations (66,000 meters, gas plant, mechanical service, gas distribution system, industrial interruptible). Vice-President and Member, Board of Directors, Gas Company with 2809

meters (franchise, organizing, financing). Married, one child. 1680.

Engineering Purchasing Agent desires position with Utility as Assistant or Purchasing Agent. Four years' experience buying for Gas Utility. Currently employed as Assistant Purchasing Agent. Background: Five years' Gas Utility Engineer. Graduate Engineer, Single, Veteran. (38). 1681

Mechanical Engineer—Interested in Sales Engineering position. Seventeen months' experience as Field Engineer for gas company. Will relocate in Northeastern United States. M.E. Degree 1950. Married. (25). 1682.

POSITIONS OPEN

A progressive middlewest utility company with a rapidly growing gas business is looking for an **Assistant Chief Engineer** (professional or qualified to become registered) less than 40 years old, with 10 or more years experience in the design, construction and operation of gas supply systems. Ability to analyze gas distribution problems, organize gas operations, secure cooperation of other departments and the drive to get things done are essential. Submit an abstract of experience, qualifications, and employment history. All replies will be treated in strict confidence. All present employees of the company know of this opening. 0622.

Gas Engineer—For consulting organization in New York. Must be graduate engineer, be up to date technically, have 5 to 10 years experience preferably with natural gas operating utility and be qualified to make economic, operating

and planning analyses. Salary range in accordance with qualifications. 0623.

Sales Manager for manufactured gas property. Experienced in gas appliance sales. Must be under 45, aggressive and have proven record of accomplishment in this field. Build and train own sales department. Salary and commission. Submit resume. 0624.

Young Engineer preferably with utilization experience for gas industry organization of national scope. Location New York. 0625.

Engineer-Accountant wanted by utility in Southeast. Must have engineering degree and experience with plant accounting, continuing property records and standard labor distributions, embracing electric utility work. Property mortality and depreciation computation experience following actuarial methods very desirable. Prefer man thirty to forty years old. Reply in detail, stating age, education, past experience, references and salary requirements. Replies held confidential. 0626.

Sales Engineer to handle New York territory for manufacturer of pressure regulators and back pressure valves. Valve manufacturing or gas distribution experience desirable. State experience and starting pay expected. 0627.

Los Angeles firm handling national industrial gas equipment line, and manufacturing industrial process equipment requires experienced man to **organize and handle California sales**. Investigation of and by a high quality man desired. 0628.

Operating Engineer with water gas and oil gas operating experience, technical background. About 35 years old, willing to travel, headquarters in New York. 0629.

Round Up

(Continued from page 29)

to reap the inevitable harvest. Undoubtedly, the natural gas factor will be an important one in this year's Old Stove Round Up.

Dealer and manufacturer problems are voiced in a recent issue of *Retailing Daily* by Harry Price, Jr., and Julius Klein. Mr. Price, president of Price's, Inc., Norfolk, Va., and Mr. Klein, president of Caloric Stove Co., Philadelphia, both see the need for effective promotion, eye-catching displays and visual demonstration. The Round Up, these industry leaders say, offers the necessary, well-planned, integrated material that is the basis for an effective selling campaign. Mr. Klein, considering the housewife-consumer's point of view, is in favor of educating dealer salesmen more thoroughly in the easy maintenance and high value of CP gas ranges. The keystone of selling, he thinks, is visual demonstration based on knowledge of the product. This combined with the strong promotion theme of the Old Stove Round Up, insures a successful season for the aggressive dealer.

Mr. Price, recently chosen Name Brand Retailer of the Year by Brand Names Foundation, is equally enthusiastic about the opportunities the Old Stove Round Up offers. This year, as in the past, his store's range advertisements will be keyed to the Round Up theme. His ads will depict an old range as "gas eater," "kitchen heater," and "dirty and messy." Mr. Price, enthusiastic about the impact and timing of the Round Up, sees many possibilities to use individual imagination. Last year, for instance, Price's gave away a

pony climaxing city-wide kiddie contests. The winning child's sponsor (who had to be an adult with an outmoded gas range!) won a new range. Keyed to the western, bronco bustin' Round Up theme, Price promotion earned many new prospects, a good deal of store traffic and of course, scores of sales.

When the many ramifications of the Old Stove Round Up, with all its opportunities for individual promotions are considered, one wonders how the theme originated. Actually, the western Old Stove Round Up was born in the Deep South. It is the brain child of William L. Plummer, who was at that time a Geo. D. Roper Co. representative, and a Mr. Crandall of the Atlanta Gas Light Company. "Rustling up old stoves" seemed like a good promotion idea, but the southern gentlemen knew little about western ranch life and less about cattle rustling. A great deal of reading and research obviously was necessary, so the would-be cowboys buried themselves for a time in western movies, National Geographic Magazine articles, books on Texas and Oklahoma. Soon after the idea was out of the blue-print stages, it caught on because of its numerous promotion angles, even in the Deep South. When dealers and utilities in the sage brush country began to use it, it paid high dividends. Utility executives all over the country soon realized its potentialities. They were sold on the western idea that "a real cowboy never got saddle sores from ridin'—just from sittin'!" The first Round Up in Grand Rapids featured a parade six miles long, complete with a tribe of Indians imported from New Mexico.

This year's Round Up, capitalizing on the popularity of Hopalong Cassidy and other

western heroes, is being planned to light the match under a well-laid bonfire. Edward R. Martin, GAMA's director of marketing and statistics, predicts that, with the usual summer slump over, sales will rise and continue strong. Sales for the first half of the year were better than expected, despite tight credit controls. Now with the relaxation of Regulation W, the effects of increased housing and population will begin to be felt in the appliance market.

As September, 1951, ebbs into fall, gas men are crooning a different kind of western ballad. It goes something like this: Hit the leather and ride for profits, corral the old stoves and brand yer prospects; its ridin' time on the gas range now, we're heading for the Old Stove Round Up!

Television

(Continued from page 7)

making the conversion job one of the most successful that the service company has undertaken. Many viewers commented on the high entertainment values of the half-hour program.

The program was written and produced by the division publicity and advertising manager, J. H. Van Aernam, and the narrator was C. T. Walker. The only talent hired from outside the company was the actress who played the housewife.

Modern Girl

● Dresses to kill and cooks the same way.
—Gas Flame,
Citizens Gas & Coke Co.

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American Gas Association

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